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ABSTRACT

This guide is designed to serve as a resource for vocational education administrators and educators involved in planning and evaluating vocational programs on the state or local level. The first chapter deals with the history and benefits of cooperation between vocational education and the private sector. Addressed in the remaining chapters of the handbook are procedures for involving business, industry, and labor in vocational programs; creating initial involvement; planning together; evaluating together; and working together using techniques for effective involvement. Appendixes to the guide include descriptions of the data collection procedures used during compilation of the manual and a series of case-site reports. Also included in the guide are seven figures, three worksheets, a list of further readings, and a reference list (MN).

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Research and Development Series No. 250

INVOLVING BUSINESS, INDUSTRY, AND LABOR: GUIDELINES FOR PLANNING AND EVALUATING VOCATIONAL EDUCATION PROGRAMS

Stephen J. Franchak
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FOREWORD

The Nation's leaders in both the executive and legislative branches of local, State, and Federal governments have shown unprecedented concern over the creation and retention of jobs for the civilian work force. This concern has been accompanied by a focus on educational excellence and the demand for vocational education programs of high quality.

Government officials and educational leaders have underscored a major commitment to support economic development. High-quality vocational education and training programs may well be critical to this economic development thrust. Moreover, the involvement of business, industry, and labor in the planning and evaluation of these programs has been viewed as essential if this goal is to be fully realized.

Public secondary and postsecondary vocational education programs are responding by initiating and improving programs that support business, industry, and labor requirements for upgrading, retraining, and job training in new skill areas. Close cooperation among educators, business, industry, and labor in specific planning and evaluation activities remains a high priority.

This publication is a resource for vocational education administrators and educators, and others involved in planning and evaluating vocational programs on the state or local level. It contains ideas and suggestions for initiating or improving the involvement of business, industry, and labor in vocational education planning and evaluation. It also provides strategies and techniques for use in promoting this involvement.

The National Center for Research in Vocational Education, The Ohio State University, under contract with the Office of Vocational and Adult Education, U.S. Department of Education, conducted this project. It was carried out in the Evaluation and Policy Division of the National Center under the direction of N. L. McCaslin, Associate Director.

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Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

Cooperation among business, industry, labor, and education has become a key concern of the 1980s, a time when scarce resources have led many diverse groups to work together toward common goals. Studies and samplings of popular opinion indicate that Americans believe public vocational education should increase and improve its involvement with the private sector, particularly employers and labor representatives, in order to facilitate the flow of workers from educational programs to jobs.

Public vocational education and business, industry, and labor have worked together in the past and continue to do so, but this involvement has too often been fragmented and uncoordinated. Joint planning and evaluation, a primary goal of both education and the private sector, seldom takes place in any formal manner.

This publication provides specific guidelines for carrying out such joint planning and evaluation. The intent throughout is to encourage local and state educational personnel to increase their coordination and collaboration with business, industry, and labor for the purpose of improving vocational education programs.

The procedures, strategies, and techniques given here are based on analysis of existing data augmented by three comprehensive case studies. A second analysis of existing data was conducted to examine the perceptions and conditions surrounding private sector involvement in vocational education planning and evaluation. Finally, additional general information was obtained through a review of selected literature. These case studies involved personnel from both public vocational education and the private sector in discussions that focused on the mutual involvement of these sectors.

Because of the wide variety of information and suggestions included in this handbook, it is not possible to include all the significant points here. Instead, a number of points of special importance are given in the remainder of this summary.

The primary mechanism for public vocational education and private sector involvement in planning and evaluation has been the collaborative council or advisory committees. A council or committee should include as wide a variety of viewpoints and interests as possible. Ideally, representatives should be future-oriented people who are recognized and respected by their peers. Every major facet of the local business, industry, and labor communities should be represented. Employers and employees should be represented both by people who have years of experience and by people who are new entrants into their occupational fields.

When a group convenes, an orientation meeting should take place. School administrators should familiarize representatives of the private sector with the overall educational program and all relevant details of the vocational program. It is important to discuss at the outset the nationally recognized goals of education and how the local and State programs address these goals.

Representatives from business, industry, and labor should also clearly define their roles as they see them and their overall goals. All representatives should become familiar with each other's systems, organizational structures, governances, and finances. The ultimate objective of this orientation is to begin building unity and involvement through describing how vocational education fits into the overall industrial environment.

After this initial exchange of information, the work of the group may very well center on a thorough examination of the vocational education system with attention given to the following activities:

- Examination of instructional content
- Assessment of instructional activities or methods
- Review of facilities, equipment, and materials for instruction
- Examination of program costs and expenditures
- Review of opportunities for inservice and preservice training of teaching staff
- Identification of supplemental education needs of employed workers in the community
- Examination of ancillary or support services, vocationally oriented guidance (i.e., career awareness and exploration), and job placement services

Representatives of business, industry, and labor who agree to become involved in vocational education planning and evaluation expect to be asked to deal with substantive issues. The group's work should be purposeful and well defined. Representatives should also expect to provide suggestions and participate in determining the scope of the group's activity rather than have agendas and goals continually defined for them.

Five major strategies that help establish close collaboration of all involved in planning and evaluation are as follows:

- Increase communication.
- Provide a mechanism for joint planning and decision making.
- Ensure commitment from involved agencies or persons.
- Define the benefits for all agencies or persons involved.
- Establish legal mandates.

These strategies provide a framework for involving business, industry, and labor in vocational education in order to improve programs and satisfy the needs of the labor market. The collaboration that can result from the use of these strategies can provide valuable assistance to educational institutions in numerous specific ways. It can, for example, help vocational education—

- determine appropriate instructional objectives;
- identify improved curriculum and instructional methods;

- motivate students and teachers; and
- develop channels for procuring and updating facilities, equipment, and supplies.

Involvement can be equally advantageous to business, industry, and labor, since it can enhance the potential of vocational education to increase productivity, develop a satisfactory work ethic in participants, and increase job satisfaction.

For all concerned, successful cooperation and collaboration among business, industry, labor, and education offer many advantages. Ultimately, planning and evaluating the vocational program together can lead to very important benefits for the community. Improved vocational education can create a supply of better-trained and more-productive workers to meet the needs of business and industry and enhance economic development.

PURPOSE OF THE HANDBOOK

This handbook is designed to encourage local and State educational personnel in their efforts to coordinate and collaborate with business, industry, and labor for the purpose of program improvement. Toward this end, the handbook identifies successful strategies and procedures used by secondary and postsecondary vocational educators to initiate and increase the involvement of the private sector. Finally, it provides specific guidelines and procedures for carrying out the joint planning and evaluating of vocational programs.

In developing the handbook, four major questions were stressed:

- What changes are needed in the planning and evaluating of secondary and postsecondary vocational education if input from business, industry, and labor is to be included?
- What specific decision-making activities should vocational educators and representatives of business, industry, and labor undertake in planning and evaluating secondary and postsecondary vocational education?
- How can vocational education, business, industry, and labor implement planning and evaluating activities for secondary and postsecondary vocational education?
- What process activities address the involvement of vocational educators with representatives of business, industry, and labor in evaluating secondary and postsecondary vocational education?

Many individuals and groups provided input on these issues. The analysis of existing data from business, industry, labor, and education by various local, State, and Federal agencies provided the initial information base. The National Center's previous work in business, industry, and labor coordination and collaboration also supported the development effort. Additionally, information obtained from the three case site visits provided ideas to support the development of the strategies, procedures, and techniques. Finally, telephone discussions and mail correspondence with 34 State and local vocational education personnel provided input on relevant examples of business, industry, and labor involvement in vocational education planning and evaluation.

The strategies and techniques given here were developed from a content analysis of the above-mentioned information sources. That information base was refined and validated through the nominal group process with 14 persons from the National Center. These persons were experienced in vocational education evaluation and planning as well as in collaboration with business, industry, and labor. Finally, a panel of four persons representing business, industry, labor, and education at the local and State levels was asked to critique the proposed strategies and techniques. From this exchange of information a final list was developed.

This handbook describes private sector involvement in educational planning and evaluation from several perspectives, beginning in chapter 1 with an overview of the history of this involve-

ment and the trends affecting it today. Chapter 2 provides a description of industry-education work councils and vocational education advisory committees. Both barriers and facilitators to involvement are also identified in this chapter. Methods for creating initial involvement are given in chapter 3. Chapters 4 and 5 discuss steps in planning and evaluation, with attention given to legislation that affects vocational education planning and evaluation. Chapter 6 presents specific techniques for working together in councils or advisory committees. These perspectives provide a guide that vocational education personnel can use in working to involve business, industry, and labor in effective program planning and evaluation.

CHAPTER 1

VOCATIONAL EDUCATION AND THE PRIVATE SECTOR

Most people agree that vocational education has contributed significantly to the employment and training of American youth. This belief was indicated by responses to the Gallup Poll of Public Opinion on Public Education (Gallup 1983). Overall, those surveyed expressed a high degree of support for the idea of making vocational education available to all youth.

Research indicates that this confidence is justified. Students who have enrolled in vocational education programs experience greater rates of participation in the labor force, less unemployment, and higher annual incomes (Gardner, Campbell, and Seitz 1982). For graduates from most program areas, the income advantage is long term and large enough to be of practical significance (Desy, Mertens, and Gardner 1984).

Much of the effectiveness of vocational programs can be credited to the responsiveness vocational educators have shown to changing labor market demands. The number of vocational programs directed toward skill shortages in specific occupations has grown over the past several years (Starr 1983). Vocational educators have developed numerous approaches toward facilitating the school-to-work transition, enhancing productivity, and contributing to job creation. The programs that have emerged include cooperative education, work-study, customized job training, quick-start programs, industry-education, work-education, and area planning councils. Many are designed to include business, industry, and labor at every possible level.

The History of Involvement

Private sector involvement in vocational programs is not new. Vocational education has been linked with business, industry, and labor since the Smith-Hughes Act of 1917. The interdependence of business, industry, labor and education was formally recognized in the rules and regulations issued by the U.S. Office of Education in 1922 (Burt 1967). These linkages were so close that early vocational education programs were sometimes criticized by those who thought job training closely aligned with business needs was not always in the best interests of the people.

The role of business, industry, and labor in education has changed with changing social needs. In the 1960s and early 1970s, the Federal Government emphasized job training as a means of affecting social mobility rather than a vehicle for overall economic growth. When the private sector was involved with education, it likewise tended to address issues of social equality. Advisory groups often reflected the concern for democratic representation of underserved groups. The focus had shifted from the private sector interests of earlier times to the social issues of the day.

Recent years have seen another shift in both the nature of vocational education and the demand for private sector involvement. Demographic trends and advances in technology have created an increasingly urgent need for the involvement of business, industry, and labor in voca-

tional education planning and evaluation. Clark and Rinehart (1982) note this increased interest, but add that the joint efforts of the private sector and vocational education are often fragmented and uncoordinated. These efforts, they conclude, must be unified if the linkage between education and work is to become stronger.

The possibility exists that the link will become weaker instead. Because some educational and training needs have not been met by the educational system, United States employers in the private sector are now spending between $30 and $40 billion a year on human resource development and training programs (Craig and Evers 1980). The involvement of vocational education has the potential for enhancing the cost-effectiveness of these human resource development and training programs.

The Influence of Social Change

Shifts in the interface between education and work are the result of major social change. The most striking changes in the United States are those resulting from the long-term decline in fertility (Coates 1983). This demographic trend has led to smaller families, a higher percentage of older persons in the population, and fewer young people entering the work force. The number of Americans between 16 and 24 years old peaked at about 36 million in 1983. The U S. Department of Labor expects that figure to fall by 10 percent through 1985 and another 7 percent by 1990. One effect of this trend is that the focus of skilled work force preparation has increasingly shifted to the retraining of adults, including women and older citizens.

A second major influence on the interface between education and work is technological change. Because of new technology, job skills in many occupations are becoming obsolete at a faster rate than ever before. Automated equipment is displacing large numbers of lower-skilled workers and some more highly skilled workers as well. The same advances in technology have sharply increased the demand for higher-level training and retraining programs. Many more jobs now demand a comprehensive grounding in mathematics and the sciences.

Worthington (1981) cites additional major changes that will continue to affect the relationship of education and work. The first is the fight to halt inflation and revitalize the economy. The second is a general reliance on the private sector—primarily on employers—for training. These developments, he concludes, will result in the following changes:

- Elementary and middle schools will strengthen their emphasis on career development education.
- Educational institutions will reemphasize the importance of mathematics and science.
- Postsecondary institutions will place more emphasis on technical education and receive new forms of support from businesses and industries, especially the use of expensive equipment.
- Private employers will increase their own training efforts, but will also support public vocational education, recognizing the need for this source of entry-level skilled workers.

The Benefits of Involvement

In this climate of change, closer links between business, industry, and labor offer many advantages. One is better communication of information about local job and training opportunities (Prager et al. 1981). As Clark and Rinehart (1982) point out, such communication benefits all participants. For industry these benefits include a supply of potential employees trained to meet labor market needs. Industry can also design and implement cost-effective training programs for current employees with the help of vocational educators. Vocational students benefit from better linkage through up-to-date training, work experience that relates theory to practice, and potential job opportunities. Their instructors benefit by receiving state-of-the-art information and resource support from the private sector. Educational institutions benefit through better information to use in updating instructional programs. Finally, vocational educators are better able to improve their training and placement programs.

In the long term, society as a whole benefits from private sector involvement in vocational education. The ideal linkage balances the interests of individuals, business, industry, labor, and the community.

CHAPTER 2

INVOLVING BUSINESS, INDUSTRY, AND LABOR IN VOCATIONAL PROGRAMS

Types of Involvement

Relationships between vocational education and the private sector have been the subject of careful study. The literature in this area uses various terms to describe cooperation, with coordination, linkage, and collaboration among the most common.

- **Coordination**--This process begins with those agencies involved identifying their common goals for maintaining organizational effectiveness. Once they have done so, they interrelate services toward these common goals, without sacrificing individual program goals or requirements (Maurice 1981).

- **Linkage**—A negotiated, authoritative arrangement, linkage takes place between organizations able to coordinate and/or exchange resources or activities. The purpose of linkage is to achieve each organization's goals and also meet mutually defined goals and objectives (Banathy and Duwe 1978).

- **Collaboration**—This process depends on all parties involved clearly defining their expectations. When they have done so, the next step is reaching agreement on shared goals. These goals define the group's actions from that point on (Hord 1983).

These three terms are often used in defining ways business, industry, labor, and education can work together. The process of *networking* makes use of all three kinds of relationship, as well as a fourth, cooperation (Colorado Department of Education 1983). Networking further involves connections between people who can share information and resources with one another. Networks may well be the structures of the future (Naisbitt 1982). At the least, their usefulness is undeniable. Any attempts to involve the private sector with vocational education should make use of networking as far as possible.

Cooperative Practices

The most common forms of cooperative practice between the private sector and vocational education are advisory committees and collaborative councils. Advisory committees are usually mandated through State and Federal legislation. Collaborative councils, in contrast, are voluntary organizations.

Advisory committees. Rogers (1981) describes an educational advisory committee as follows:

> An organized group of lay people interested in education who give assistance in planning an educational program that will prepare students for satisfactory employment in the business community. (p. 11)

The literature on advisory committees often stresses the idea that a consistent exchange of information is necessary to keep educational programs relevant and accountable. Advisory committees are a good vehicle for this interchange. A number of the strategies and techniques for involving the private sector in vocational education given in this handbook can be used in advisory committees, and may serve to fill the need for information in this area.

Advisory committees can serve a very wide variety of functions. According to Scheller (1978) these can include—

- public relations,
- curriculum advice,
- funding support of the program,
- support of legislation,
- program evaluation,
- recommendations for change,
- textbook reviews,
- encouragement of individual teachers, and
- placement selection criteria.

The functions an advisory committee performs will vary with the people involved and the specific needs of the vocational program. Hagman and Barlow (1971) specify four broad functions advisory committees can perform. The first three—public relations, instructional planning tasks, and program evaluation—are included in the above list; Hagman and Barlow add job market analysis as a fourth important function of advisory committees. Other sources, including the Pennsylvania Advisory Council on Vocational Education (1982) and Riendeu (1977), have stressed that a basic function of the advisory committee should be to give advice in the development of both long-range and annual plans, an approach that is also emphasized in these guidelines.

The effectiveness of advisory committees has often been questioned. According to Oswald (1983), a statewide study of 1,000 vocational education advisory committees indicates that these committees have little or no impact on the vocational programs they serve. Oswald adds that this is a critical problem. Job obsolescence, shifts in the work-age population, and changes in the economy make it more necessary than ever to link vocational education to the community through advisory committees.

Collaborative councils. A second major form of cooperative practice is the community-based council (Clark 1982). Industry-education councils and work-education councils typically play far more active roles than advisory committees. Clark describes the role of these councils:

> The linkage between education and the broader community through an industry-education council highlights the direct participation of decision makers from the private and public sectors working with the schools in such key areas as staff and curriculum development, occupational information systems, school-based job placement, and work experience/career exploration. This industry-education alliance focuses on thorough *planning*, realistic objectives, key result areas, incremental improvement, and *measurements*—supported by a strong long-term commitment by education and the business/labor/government/professional community. (p. 25)

Despite this potential, not every council uses its energies to the best advantage. Countless hours may be spent in a council "selling" the concept of collaboration, building constituencies, talking through problems, building consensus, and sustaining enthusiasm (Elsman 1981). Moreover, like advisory committees, councils are not always effective. Among the problems sometimes encountered in operating councils are institutional ire[illegible]d suspicions between the groups involved (Useem 1981).

This should in no way discourage educators or members of the private sector from forming councils. There are usually some difficulties in any form of collaboration, and a council may still provide the most appropriate context in which business, industry, labor, and education representatives can work together (Clark and Rinehart 1982).

Barriers to Involvement

Forming a council* can be difficult unless representatives of the private sector feel some degree of responsibility for solving community educational problems. If they do not, it may be impossible to build enthusiasm for cooperative endeavors. Without a sense of responsibility, there is little incentive for participation in an advisory committee or collaborative council. It is vital, then, that those who are initially chosen to form a council share a commitment to the vocational education process.

When it is formed, a council is a collection of people from diverse organizations with equally diverse interests. This fragmentation must gradually be transformed to a sense of unity, if effective working relationships and involvement are to develop (Clark 1983). The council can become unified if representatives are given a coherent structure and a process leading to involvement. One good approach is to direct the council toward specific activities, such as school improvement or economic development, that benefit employees, youth, and adults, and that can fit into the interests of most or all the members.

Members from the private sector may have a different sense of the decision-making process than those from education. If the council moves too slowly, representatives from business, industry, and labor can become impatient. Key decision makers in the private sector usually recognize the need for thorough planning (Clark 1983); however, time is money in business, industry, and labor, and time spent in meetings without reaching any decisions may soon discourage private sector representatives and lead them to withdraw from the council. Any political controversy can also cause members to disassociate themselves from an advisory committee or council (Prager et al. 1981).

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*The word "council" will be used from this point on to refer to a cooperative group of representatives from the private sector and education, regardless of specific structure.

Representatives from management and unions are sometimes reluctant to work together on the same advisory committee or council—possibly because of the adversarial relationships involved in the collective bargaining process, or because the employer hires nonunion labor. In addition, labor union representatives are often reluctant to become involved because they feel they cannot speak for labor as a whole. Forming a council demands tact and sensitivity to these issues.

A problem often encountered by councils attempting to plan vocational programs is the lack of timely, accurate information from employers. New councils should be sure to address themselves to the need for structured communications with business and industry (Clark 1982). A similar consideration is the need to tap into the power structure of the community. It is especially important to work with those employers who control the economic development process. A council's effectiveness can be greatly diminished if it does not have the level of management support within business that is needed to gain the attention of employers.

This listing of the problems councils sometimes encounter is meant to be helpful rather than discouraging. The research mentioned here suggests that these barriers should be taken into account. Successful councils and committees have had to overcome these problems in order to be effective. Strategies and techniques that can be used to form a council, overcome difficulties, and build effectiveness in planning and evaluation are delineated in the remainder of these guidelines.

CHAPTER 3

CREATING INITIAL INVOLVEMENT

The best way to create a unified, purposeful council is usually to involve the group in a meaningful task. Working toward a common goal tends to overcome diversity and minimize any difficulties members of various groups might experience in working together. Unity and commitment are best created through participation in the overall process of planning the vocational program and evaluating its success and its needs.

In each step of this process, business, industry, and labor representatives should be involved to varying degrees with the level of involvement dictated by the role vocational education plays in the group the member represents. Members of the private sector are impacted by vocational education in different ways. It is therefore essential that the council, in its formative stages, examine the roles and functions of the individuals or firms who may be asked to represent the private sector. Those who are more directly affected by vocational education are likely to have more interest in working in a council.

The Planning and Evaluation Process

Figure 1 gives an overview of the planning and evaluation process. The framework is constructed to indicate that planning leads directly to evaluation. It further illustrates that at any point, from the initial description of needs to the assessment of the procedure, representatives of business, industry, and labor can participate.

Areas of participation should depend on expertise and interest. For instance, a labor representative may have special concerns about the mission of vocational education, a business person may be knowledgeable about routes for interagency coordination, and a member from industry may be interested in program needs. Of course, all members should be fully informed about the work of other members, and all should have ample opportunity for input in every area.

There are numerous ways to structure the planning process. All emphasize certain fundamental steps: assessing the context and mission, setting goals, implementing strategies, and evaluating results. Evaluation includes reassessing the goals, assessing the outcomes, and reevaluating the overall plan. The steps within the planning and evaluation process should be as well defined as possible. Following is a more detailed breakdown of the steps which are normally part of a careful planning and evaluation process.

1. **Steps in Planning:**

   - Explore possible futures and examine values.
   - Establish goals (long-range).

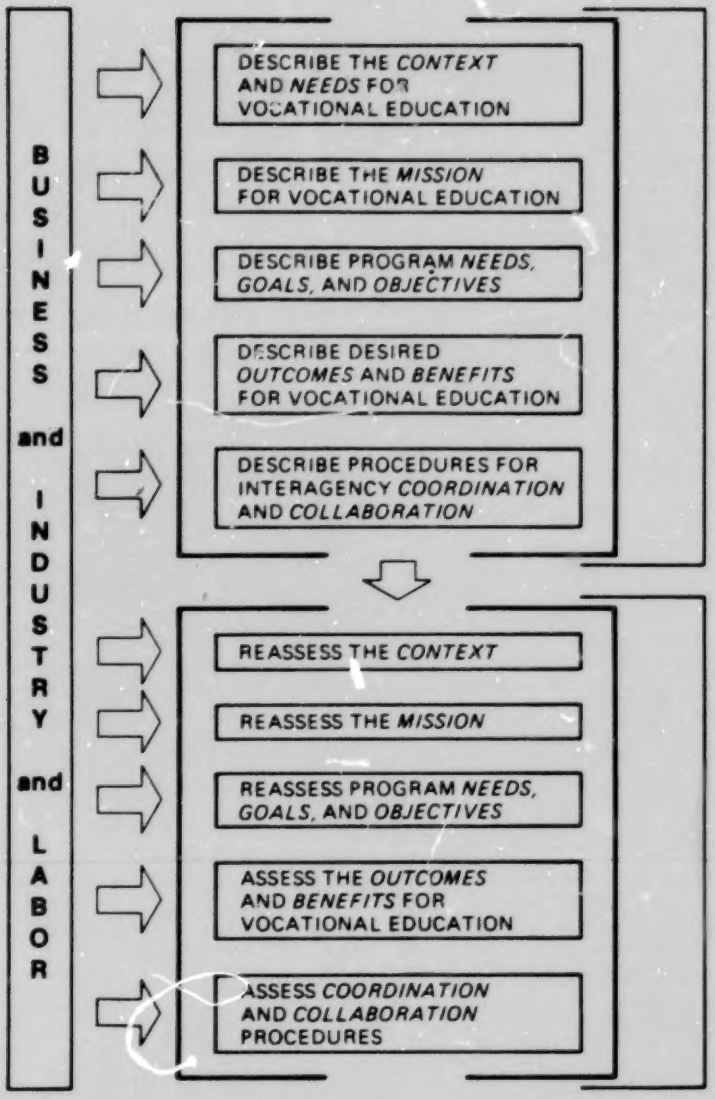
BUSINESS and INDUSTRY and LABOR
DESCRIBE THE *CONTEXT* AND *NEEDS* FOR VOCATIONAL EDUCATION
DESCRIBE THE *MISSION* FOR VOCATIONAL EDUCATION
DESCRIBE PROGRAM *NEEDS, GOALS,* AND *OBJECTIVES*
DESCRIBE DESIRED *OUTCOMES* AND *BENEFITS* FOR VOCATIONAL EDUCATION
DESCRIBE PROCEDURES FOR INTERAGENCY *COORDINATION* AND *COLLABORATION*
PLANNING TASKS
REASSESS THE *CONTEXT*
REASSESS THE *MISSION*
REASSESS PROGRAM *NEEDS, GOALS,* AND *OBJECTIVES*
ASSESS THE *OUTCOMES* AND *BENEFITS* FOR VOCATIONAL EDUCATION
ASSESS *COORDINATION* AND *COLLABORATION* PROCEDURES
EVALUATION TASKS

Figure 1. A structural framework for involving business, industry, and labor in planning and evaluation.

SOURCE: Adapted from Starr, Merz, & Wahniser (1982, p. 13).

- Sense opportunities and assess needs.
- Determine capacities and constraints.
- Specify objectives (short-range)
- Set priorities under given constraints.
- Develop alternative courses of action.
- Analyze the alternatives.
- Select a course of action.
- Identify resource requirements.
- Prepare an implementation plan.
- Formulate evaluation/feedback mechanism.

As this list shows, a complete plan includes a mechanism for evaluation. The initial exploration is also a form of evaluation, and must be reasonably comprehensive if the group is to address needs realistically and set appropriate goals.

Like planning, evaluation follows a logical pattern.

2. **Steps in Evaluation:**
   - Identify general focus of the evaluation.
   - Develop evaluation questions.
   - Identify evaluation criteria.
   - Specify evaluation methods.
   - Develop data analysis plan.
   - Collect evaluation data.
   - Analyze and interpret the data.
   - Prepare report on the results.
   - Develop dissemination plan.
   - Develop plan for assessing the evaluation.

Identifying Priority Areas

Worksheet 1 presents a method for identifying the areas in which the vocational education system can most benefit from working with representatives of the private sector. One page is given to planning and one to evaluation, with all the tasks just presented included. The worksheet should be filled out by the vocational program administrator and other persons knowledgeable about the program and the context in which it operates.

To use the worksheet, examine each task and rate it on the left for its importance to present needs. Once priorities are established for every task on the list, return to the beginning. This time, decide to what degree members of the private sector should be involved in each task.

The completed worksheet will serve as a visible guide to priorities in involving business, industry, and labor in the vocational program. It should suggest people and organizations to contact for a new council. When the planning task is high priority and involvement by business, industry, and labor is also high priority, members should be very carefully selected, since their contributions can be quite important.

Strategies for Involvement

Once the need and the priorities for involving the private sector in vocational education are established, specific strategies to bring about this involvement should be chosen. This section presents a set of strategies vocational education administrators have used either to initiate or to improve the involvement of business, industry, and labor in program planning and evaluation.

Strategy is used here in the sense of a broad course of action. Strategies are chosen according to how well they address defined goals or problems. Techniques—particular methods of activities used to support strategies—are discussed in detail in chapter 6. One or several techniques may be used to implement any given strategy.

The best way to choose a strategy to involve others in vocational education is to examine the specific planning and evaluation tasks selected on Worksheet 1 as having high priority. The planning task and the degree of involvement desired will suggest the choice of strategies. It can be very helpful to discuss possible strategies with members of the private sector and others in education. After consideration, a specific strategy for long-range involvement should be chosen.

The strategies presented here focus on what seem to be the fundamental issues of building a cohesive group. They are—

- increase communications,
- provide mechanisms for joint decision making,
- build commitment in involved participants,
- define the benefits of participation to those involved, and
- establish legal mandates.

WORKSHEET 1

ESTABLISHING PRIORITIES FOR INVOLVING BUSINESS, INDUSTRY, AND LABOR IN PLANNING AND EVALUATION

Importance of Activity		Degree to Which Business, Industry, and Labor Should Be Involved
High Low		High Low
5 4 3 2 1		5 4 3 2 1
(check one)	PLANNING TASKS	(check one)
_____	• Explore possible futures and examine values.	_____
_____	• Establish goals (long-range).	_____
_____	• Sense opportunities and assess needs.	_____
_____	• Determine capacities and constraints.	_____
_____	• Specify objectives (short-range).	_____
_____	• Set priorities under given constraints.	_____
_____	• Develop alternative courses of action.	_____
_____	• Analyze alternatives.	_____
_____	• Select course of action.	_____
_____	• Identify resource requirements.	_____
_____	• Prepare an implementation plan.	_____
_____	• Formulate evaluation/feedback mechanism.	_____

WORKSHEET 1—Continued

Importance of Activity High Low 5 4 3 2 1 (check one)	EVALUATION TASKS	Degree to Which Business, Industry, and Labor Should Be Involved High Low 5 4 3 2 1 (check one)
	• Identify general focus of the evaluation.	
	• Develop evaluation questions.	
	• Identify evaluation criteria.	
	• Identify evaluation methods.	
	• Develop data analysis plan.	
	• Collect evaluation data.	
	• Analyze and interpret data.	
	• Prepare report on the results.	
	• Develop dissemination plan.	
	• Develop plan for assessing the evaluation.	

The first and most basic strategy for promoting involvement in a group effort is to increase communications. This can be done in many ways. A survey can be used to determine public opinion on the type and degree of involvement that seem desirable. An information exchange network can be established to gather the data needed for planning and evaluation. The community can give input through regular open hearings focused on planning and evaluation issues. Another way to increase communications with the community is to generate instructional information for teacher education institutions, apprenticeship programs, or business, industry, and labor associations.

A second strategy for increasing involvement is to provide mechanisms for joint decision making. One good beginning is to set up a committee to identify and select goals for the vocational programs. Another possibility is to conduct group sessions on selected topics for representatives of business, industry, labor, and education, with the sessions ending in consensus or resolution. Still another way to initiate joint decision making is to set up specific collaborative, decision-making activities. These can involve such programs as cooperative education and industry exchange.

A third important strategy is that of building commitment among those who are, or could be, involved. This can be fostered by obtaining the endorsements of the recognized authorities or "power brokers" who command respect within the business, industry and/or labor constituencies. Commitment can also be built by providing special recognition for those who contribute to planning and evaluation efforts.

A fourth strategy for involving members of the private sector is that of defining the benefits of participation. This means appraising and discussing the potential benefits of their planning and evaluation tasks with the participants. Cost-benefit estimates are usually important to the private sector, and should be included where appropriate. The benefits actually derived by specific participants can be publicized.

A final strategy is the establishing of legal mandates. This means formulating policy statements addressed to State legislatures, labor unions, corporations, and State and local school boards. Such activity publicizes the needs of the vocational program as well as increasing the commitment of those who speak out for the program.

Strategies must be flexible and open to change. Over time, the need for involvement varies and the availability of resources changes. The selection of strategies for involving community sectors should be responsive to these changing needs.

Figure 2 presents an overview of the process of identifying first tasks, then strategies, then techniques. The techniques listed are described in chapter 6. Note that the selection of tasks leads to the involvement of those representatives of business, industry, and labor who can contribute to the choice of strategies and techniques.

Initiating Involvement

Advisory committees and councils are usually formed by one or more key people from business, industry, labor, or education. For the council to be effective, however, initiative must be taken over by members from all the groups involved (Iowa Career Education Division 1983).

Initial momentum is important. This is sometimes established by a small subcommittee, with school board members playing a vital role. Such a group can develop statements of purpose and objectives that define the group and help focus goals. Choice of leadership during this period is

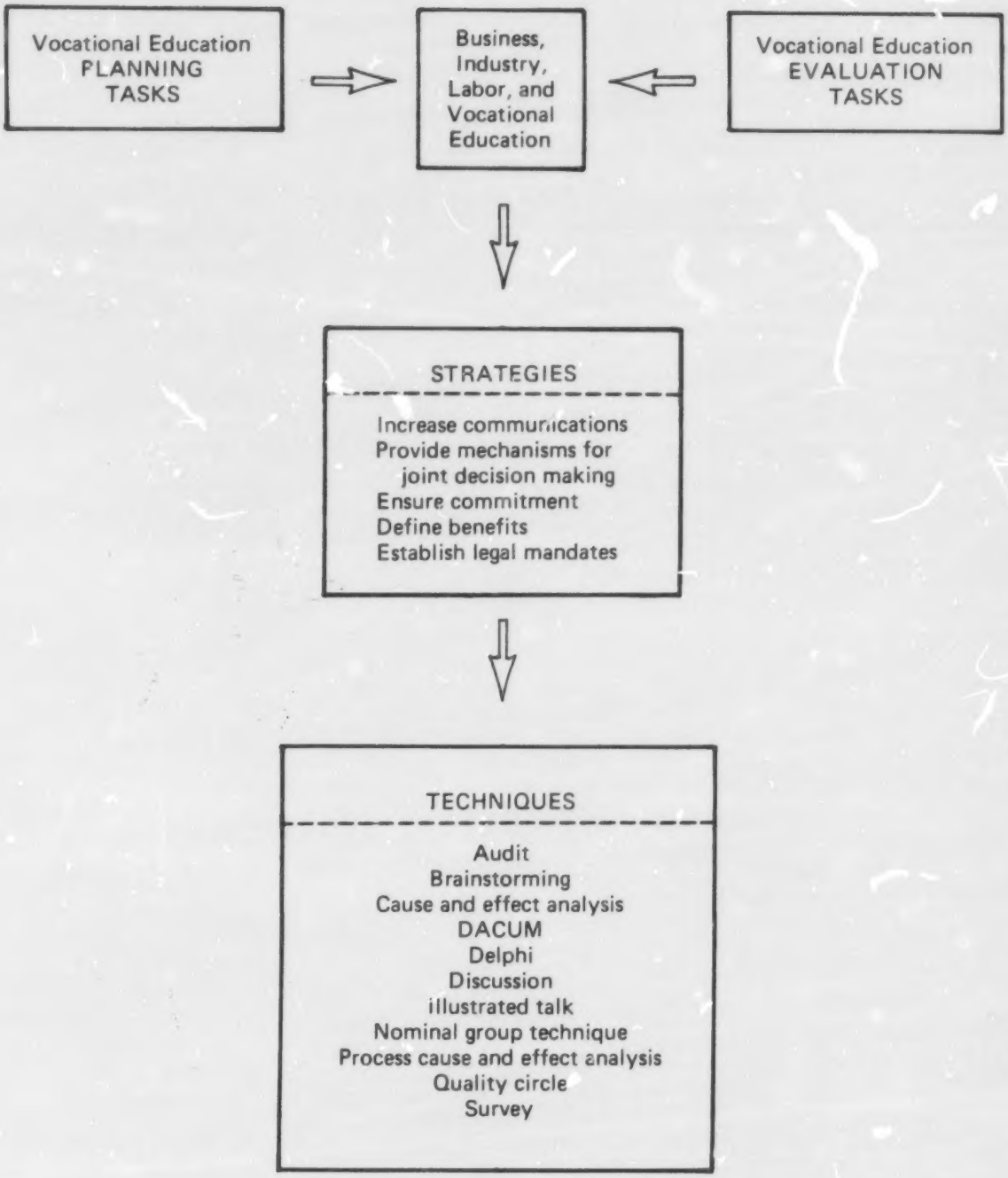

Figure 2. A process framework for identifying strategies and techniques for planning and evaluation.

also very important. The overall effort is best coordinated by an industry-education coordinator or director of school-industry cooperation—someone with experience in both industry and education (National Association for Industry-Education Cooperation 1973). Those who represent business, industry, and labor should have firsthand experience with the vocational programs they are advising. Employers and employees should be represented by persons with years of experience in their fields as well as by new entrants.

The council should include people with a wide variety of viewpoints and interests. Ideally, representatives should be future oriented. The more representatives are recognized and respected by their peers, the more easily the council can accomplish its work. Every major facet of the business, industry, and labor communities should be represented.

When a group first convenes, an orientation meeting should take place. School administrators should familiarize representatives of the private sector with the overall educational program and present all relevant details of the vocational program. At this point it is important to discuss the nationally recognized goals of education and the ways local and State programs address these goals.

In the initial meeting, representatives from business, industry, labor, and education should clearly define their roles as they see them and their overall goals. They should also begin becoming familiar with each others' systems, organizational structures, governances, and finances. The final activity of this initial orientation should be an exploration of how vocational education fits into the overall industrial environment.

In its first meetings, the group will need to devote time to becoming thoroughly familiar with the vocational education system. Following are some areas of study:

- Examination of instructional context
- Assessment of instructional activities or methods
- Review of facilities, equipment, and materials for instruction
- Examination of program costs and expenditures
- Review of opportunities for inservice and preservice training of teaching staff
- Identification of supplemental education needs of employed workers
- Examination of ancillary or support services, vocationally oriented guidance (i.e., career awareness and exploration), and job placement services

In forming a council it is important to bear in mind that representatives of business, industry, and labor who agree to become involved in vocational education planning and evaluation expect to be asked to deal with substantive issues. The group's work should be purposeful and well-defined from the beginning. At the same time, representatives also expect to provide suggestions and participate in determining the scope of the work, rather than have agendas and goals continually defined for them.

The Effective Council

Studies have been done to determine what makes councils effective. Datteri (1977) compared nine State councils that were considered outstanding with nine other State councils chosen at random to determine the differences between the two groups, and made the following recommendations as a result:

- Councils consider meeting regularly at least 10 times a year. (This idea is supported by another study, which found that increasing the number of meetings per year increased the perceived level of importance given to the council by some members, particularly those from area vocational schools and community or junior colleges [Behymer 1977].)

- Councils conduct at least four public hearings per year at various sites in the geographic area. Public hearings give the council valuable feedback and allow the community to participate in the decision-making process.

- Councils consider employing at least two professional staff persons. One function of the staff should be to maintain excellent relationships with legislators and with State vocational directors and their staff.

- Councils develop good working relationships with State education agencies and other related groups.

- Councils build sources of information and input.

Numerous factors affect the success of advisory committees and councils. Clark and Rinehart (1982) identified three factors that may be particularly important in the early phases of the council. First is the identification of those who will form the council. Second is clarity of expectations; those involved should understand both the services to be contributed and the length of the appointments. Last is consensus on the real purpose of the committee, a necessity if the group is to move toward common goals.

CHAPTER 4

PLANNING TOGETHER

There are few notable examples of comprehensive planning success. House, Shull, and Williams (1978) explain that this is so because planning rests on several factors not always within a group's control:

> The U.S. Lunar Exploration Program is a shining example of good planning—NASA planning techniques were held up as models to all other federal agencies for several years. However, NASA had a few advantages that most other agencies lack: (1) a concise goal (a man on the moon by 1970), (2) almost unanimous public support, (3) almost no budget constraints, and (4) little need for interagency coordination. (p. 4)

Vocational education groups, whether they are local, State, or Federal, do not have these advantages. Their planning must address multiple goals and client groups, varied public support, restrictive budgets, and the need for interaction with both internal and external agencies. For these reasons it is important to carefully consider a number of critical questions and factors as a council forms and begins planning.

Initial Considerations

Long-range strategic planning is both complex and time consuming. Answering the initial critical questions requires timely, detailed, and valid labor market information, as well as a variety of resources. Few vocational education administrators enjoy the luxury of a full-time or even a half-time planner to address these questions. Nevertheless, long-range strategic planning is necessary in order to satisfy program needs and provide for program improvement.

Before involving the private sector in the long-range planning process, an administrator should have a firm grasp of the problems and issues that are fundamental to the process. These critical questions and the information used to answer them can be shared with the convening council. The questions follow the usual order of planning, as shown in boldface, and lead directly into evaluation:

Description of Context

- What have we accomplished?

Description of Mission

- What do we want to accomplish?

Definition of Goals

- When do we want to accomplish it?

Definition of Desired Outcomes

- What will be the benefits of this accomplishment?

Strategies and Procedures

- How can we accomplish it?
- What resources will we need?

Evaluation

- How will we know when we have succeeded?

These critical questions form the basis of later, more detailed planning that follows the same path from initial evaluation of the context through evaluation of the outcomes. Before involving representatives of the private sector in planning and evaluation, vocational administrators should explore these questions thoroughly to gather as much information as necessary. Once an advisory committee or council is formed, it should be treated as a partner in the information-gathering and planning processes.

Planning for Labor Market Needs

Satisfying the labor market needs of both participants in vocational education and employers is a primary goal of vocational education. To incorporate these needs in long-range planning, a thorough understanding of the labor market context in which the school operates is essential. This section highlights the contextual factors that affect labor market needs and should be considered in long-range planning.

The Employment Context

Since local employment is influenced by the broader context, employment [illegible] on the National and State level should be examined in addition to data on the local level. [illegible]ous National statistics do not describe state or local labor markets. For example, the u[illegible]ployment rate for a particular month may be 6.5 percent nationally, 10.2 percent in one State, and 3.5 percent in another. Local labor markets—the primary concern for local vocational education planners—can differ from one another to a great degree, and the local unemployment rate may vary considerably from the rate for the State as a whole. It is therefore important to gather as much information as possible on the local labor market.

Other aspects of employment should also be considered, such as the special employment problems of certain groups, including teenagers, minority groups, and women. In order to plan the most useful vocational programs it is best to have data on these groups. Other relevant data to collect include the racial and sexual composition of the labor force, the levels of education for those working and those not working, the hiring practices of employers, and average wages and salaries for various groups and occupations.

It may also be helpful to study specific problems, such as unemployment among high school dropouts and the job-hunting techniques of the unemployed. These studies can provide direction for long-range planning since they are likely to point to local problems and needs. For example, the changing national economic conditions may suggest a need to support local programs for the retraining and upgrading of displaced workers. Improvement in the employability of youth in both inner cities and depressed rural areas, a National priority, may call for specially focused programs.

Accurate identification of problems such as these requires information. Sources of data include National, State, and local employment services, U.S. Bureau of Census surveys and documents, Private Industry Councils, and representatives of business, industry, and labor who may or may not already be involved in vocational education. A useful aid to gathering information is the *Occupational Information System (OIS) Handbook* (National Occupational Information Coordinating Committee 1981), which provides a comprehensive listing and description of labor market information for planning needs. Information on National, State, or local priorities is also available in several publications. One example is *National Priorities for Vocational Education* (Ruff et al. 1981) and *Vocational Education: A Look into the Future* (Ruff, Shylo, and Russell 1981.)

The Educational Context

The local labor market is also defined by the types of vocational education institutions or delivery systems available in the area. Vocational education institutions vary in type, program administration structure, areas served, governing authorities, relationship to other educational agencies and to constituencies, and extent of fiscal autonomy.* These factors reflect different objectives, which may be expressed or implied. There are also likely to be differences in the extent to which State agencies have an impact, through policy or fiscal provisions, on local vocational education institutions. Planning can proceed most effectively when it is based on a clear understanding of the conditions under which the vocational education system operates.

Initial information gathering should include an examination of all educational and training programs in the area in order to avoid duplication of efforts. In addition to secondary vocational programs, a given area may have a wide variety of offerings, including the following:

- Private trade and technical schools
- Private business schools
- State retraining programs
- Private junior colleges
- Two-year programs in four-year institutions
- Community-based organization programs
- Apprenticeship programs
- Private industry training programs
- Job Training Partnership Act programs

*For a detailed description of these factors see Woodruff (1978).

Defining the labor market context of local vocational education systems is an important first step in the planning process. Vocational program offerings can only be matched to local labor market needs when both contexts are fully understood. (For a fuller description of the process of gathering and using contextual information, see Copa and Nagi Salem 1982, and Copa and Scholl 1983.)

Federally Funded Programs

As defined in the Education Amendments of 1976 (P.L. 92-482), vocational programs receiving federal funds must submit both a long-range plan and a short-range or annual plan based on assessment of student and community needs and occupational demand. Each State plan should—

- establish goals the State will seek to achieve by the end of the long-range period;
- identify current and projected occupational needs within the State;
- establish criteria for the coordination of vocational training programs;
- establish policies and procedures that the State will follow to ensure equal access to vocational education programs; and
- define explicitly the planned uses of Federal, State, and local vocational education funds for each fiscal year.

The requirements for federally funded plans are explicit and demand careful study. More detailed information on these plans is contained in Mangum et al. (1979), and Starr et al. (1978).

Stages in Planning

Each stage of planning should make use of the information, knowledge, and skills of individuals from business, industry, labor, and education. Planning can be seen as taking place in five stages, as depicted in figure 2, chapter 3.

Stage One: Describe Context and Needs

Defining the labor market context for the vocational program involves using the data gathered in surveying labor market needs. These data should cover employment, social, economic, demographic, and political conditions. It is imperative that local members of the private sector participate in this stage since their intimate knowledge of the local labor market is invaluable.

Stage Two: Describe the Program's Mission

A mission statement simply explains the organization's purpose, or reason for existing. The statement should be concise but inclusive, so that it covers all the purposes of the vocational program. From the mission statement, the more concrete goals of the program should logically be derived.

Stage Three: Identify Needs, Goals, and Objectives

At this stage, the constraints upon the program are identified. These constraints can include financial limitations, timing limitations, policy restrictions, and inadequate human resources. Once constraints are identified, their effect on the problem should be analyzed. This can lend to identification of key program needs. Important needs are also likely to have emerged during the first two stages.

When program needs are agreed upon they should be translated into long-term and short-term goals. Long-term goals can be classified in three categories. *Client- or product-centered goals* focus on such specifics as students and curriculum. *Administrative-centered goals* may deal with money, transportation, or facilities. *Personnel-centered goals* focus on teachers, counselors, administrators, and other personnel (Dunham 1977).

Once goals are listed, they are translated into measurable objectives. Ideally, an objective is stated concisely in clear, meaningful terms and deals with only one facet of the problem. It is important that each objective be representative of management philosophy and consistent with organizational capabilities.

Stage Four: Define the Desired Outcomes and Benefits

The benefits of vocational education can be seen as the long-term profits for the community, employers, students, and others who are affected by its results (Starr et al. 1982). These benefits may be economic, personal, social, and/or educational. Outcomes are the more immediate, or short-term, effects of vocational training on former students, business, industry, and labor. Like benefits, outcomes can be economic, personal, social, and/or educational. In the process of identifying benefits and outcomes, business, industry, and labor may contribute distinct perspectives.

At this point in the planning process it is time to generate alternative methods for meeting each objective. By now, those involved in planning have probably been thinking of solutions. These can be listed, perhaps during a brainstorming session. Before intensive discussion of solutions begins, however, the planners should set criteria for selecting methods. These should include cost-effectiveness, timing, statements of policy, legislation, and any other criteria the solution must meet. Subjective criteria, including such factors as the attitudes of various groups, should also be given weight.

The attempt to weigh solutions objectively against criteria should be seen as a guide to decision making—a means of ensuring that all relevant criteria are considered. Decision making should not become a purely mechanical process, although structured trade-off techniques are useful in reducing a large amount of data to manageable proportions. Techniques such as simple matrix building with weighting factors or more advanced mathematical tools such as linear programming and goal programming can be helpful in the decision-making process if all parties involved are comfortable with this method.

Stage Five: Describe Procedures for Implementation

The final stage of the planning process is the synthesis of the selected solutions into an overall plan. The plan should include specific procedures for interagency coordination. Successful interagency coordination not only facilitates the meeting of objectives, but bears dividends by leaving a

good impression with business, industry, and labor representatives and local political interests (Starr et al. 1983). When vocational education systems are coordinated, they are viewed by the community as more useful and more relevant.

Successful planning requires understanding the necessary stages in the planning process. Equally important are the interrelationships among the groups involved in planning. Finally, good planning must rest on a base of information. Although the process described here takes time, it can be used efficiently to arrive at solutions that represent the best efforts of vocational education, business, industry, and labor working together. The solutions generated through this process have a far better chance of working effectively to improve the vocational education program.

CHAPTER 5

EVALUATING TOGETHER

A Program Evaluation Model

During the evaluation process it is important to bear in mind the large context in which evaluation and planning take place. Evaluators should examine and consider socioeconomic and demographic data, labor market factors, and educational factors, such as the types of local vocational education institutions and delivery systems and the system of educational governance.

A comprehensive model of program evaluation, including three evaluation processes, is illustrated in figure 3. One type of evaluation shown in this model is *needs assessment*, used in the initial phases of a program to make planning decisions. *Process evaluation* is used while a program is operating to provide information for making implementation decisions. A useful technique for process evaluation is time-on-task assessment (see Halasz and Desy 1984). *Product evaluation* is usually done at the end of a program or whenever an outcome has been identified. This type of evaluation is used in making decisions about the future of a program or its components (McCaslin n.d.).

Perspectives on Evaluation

For some people the term "evaluation" has negative connotations, suggesting a generally critical judgment. In reality, educational evaluation is intended to be a positive activity, involving the use of information to make decisions about a program (Cronbach 1983). The goal of evaluation is to judge and improve the worth of an educational program (Stufflebeam and Webster 1983).

Evaluation can be approached from numerous perspectives. Stufflebeam and Webster classify evaluation studies into three main approaches, each with its own perspective and each based on distinct kinds of studies. These major perspectives are the politically oriented, the question oriented, and the values oriented. They are shown with the types of study associated with them in figure 4, and may suggest appropriate kinds of study to support a particular evaluation. Stufflebeam and Webster (1983) give a detailed description of these approaches. They conclude that no one approach or type of study is consistently the best for evaluating education, but that planners must select the approach that best fits their needs.

In addition to a group's overall perspective, individual perspectives will be brought to planning and evaluation by those involved. The administrator, the curriculum specialist, the teacher, the guidance counselor, the advisory council member, and the employer all approach evaluation according to their individual roles and functions. The process of evaluation must recognize and respect these individual perspectives.

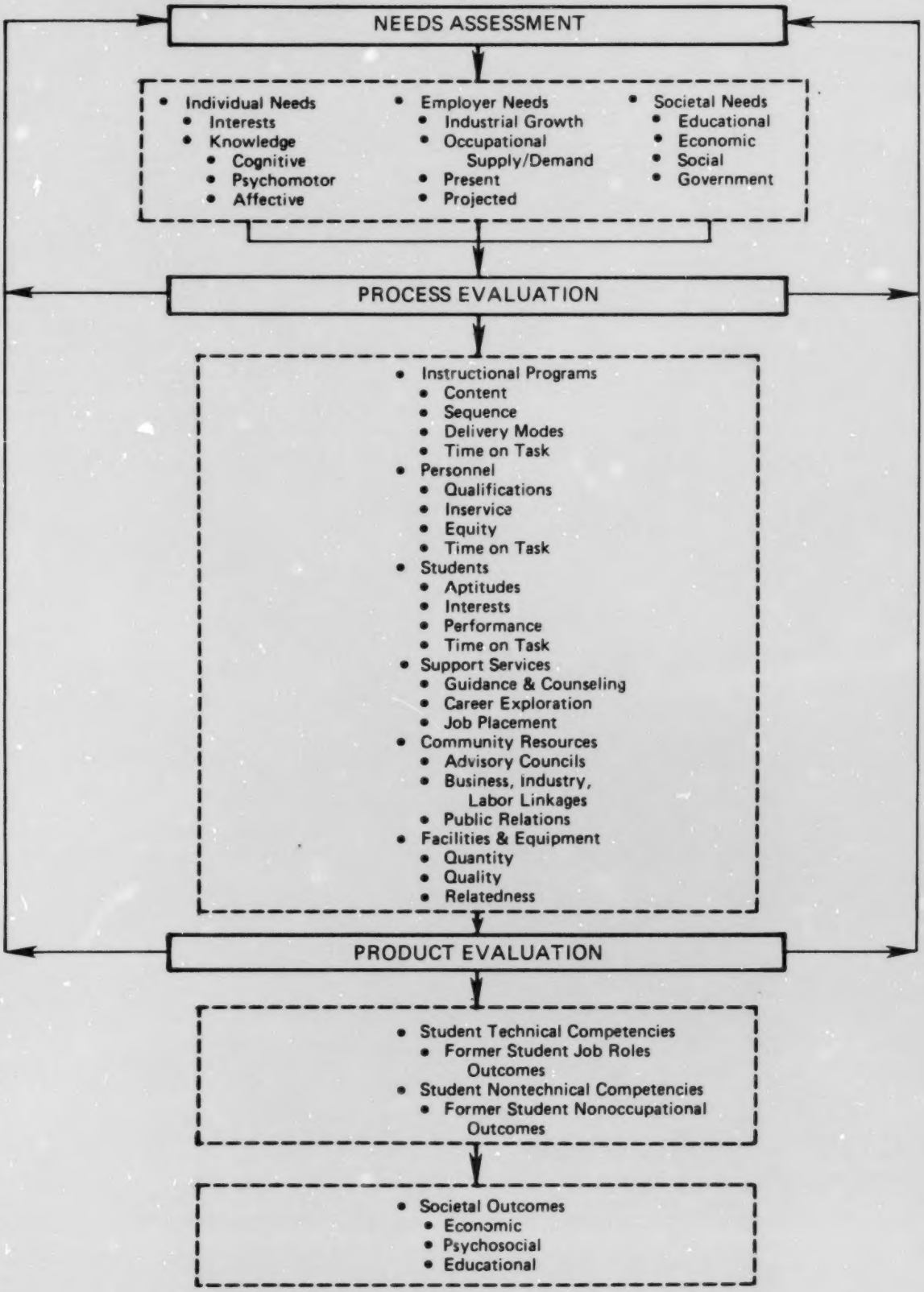

Figure 3. A comprehensive program evaluation model

SOURCE: Adapted from McCaslin (n.d., n.p.).

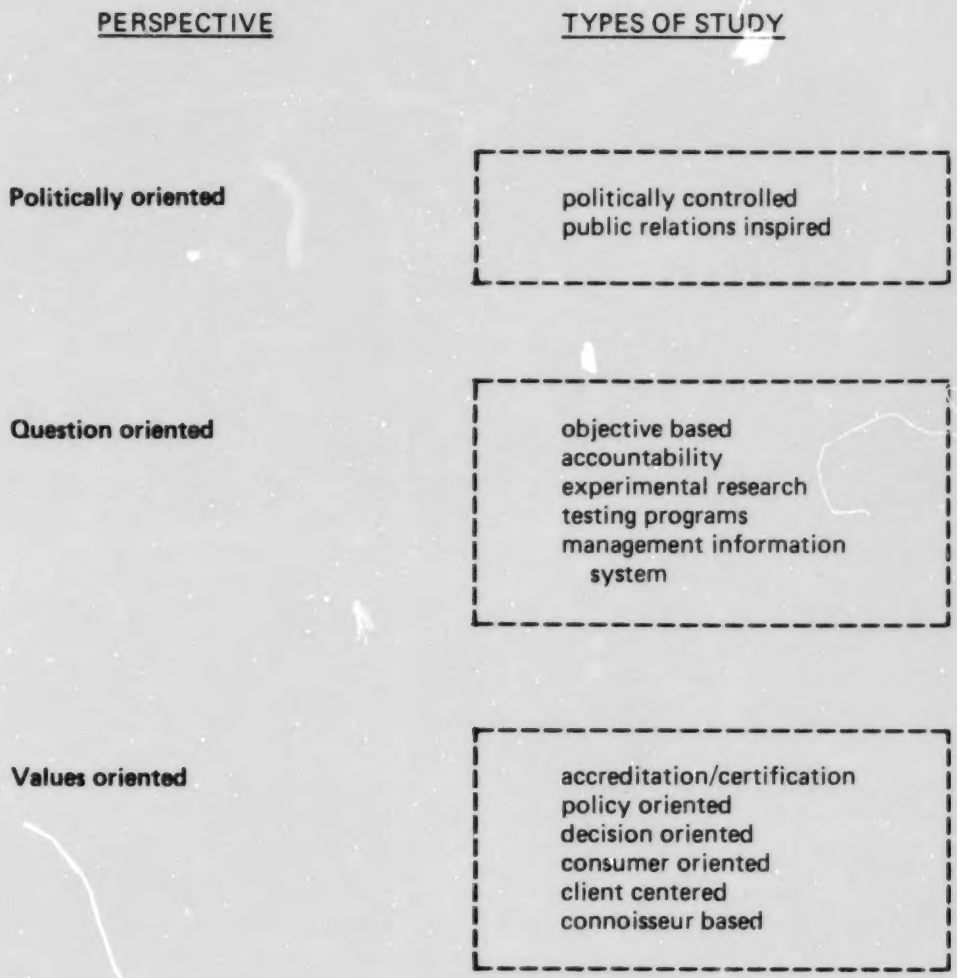

Figure 4. Evaluation perspectives and types of study

SOURCE: Adapted from Stufflebeam and Webster (1983, pp. 25-35).

Evaluating the Vocational Education Plan

Criteria

Once representatives of business, industry, labor, and education have developed a plan, the plan should be carefully evaluated in light of criteria developed by the planners. According to Dunham (1977), whatever other criteria are used, the plan should be—

- **accurate**—based on good data and information;
- **farsighted**—addressing needs and issues that will probably be important for some time to come;
- **reasonable**—taking into account available and projected resources;
- **broad-based**—involving many people and issues;
- **systematic**—moving from the present to the desired objectives in a well-defined and efficient way;
- **useful**—possessing benefits for everyone who participates in the process;
- **responsive**—reflecting real needs, issues, and problems.

The remaining criteria for evaluating the plan can be seen as steps in evaluation that grow from the planning process.

Stages of Evaluation

The first step in evaluating a vocational education plan is to reassess the context of the vocational program. The major questions to ask are related to evaluation tasks. They fall in four general categories.

Description of Context

- What is the labor market context for this program?
- How does this plan take that context into account?

Description of Mission

- What are our overall instructional purposes?
- What are our labor market intents?
- Who is to receive training?

Reassessment of Goals

- What program needs have to be considered if the mission is to be fulfilled?

Reassessment of Desired Outcomes

- What outcomes and benefits will serve as a basis for evaluating the success of the plan?

Federal Evaluation Requirements

As a result of the passage of the Education Amendments of 1976 (P.L. 94-482), evaluation of vocational education is now required. State and local education agencies, their boards of education, and their advisory committees or councils are given evaluation responsibilities under this act, which requires the involvement of business, industry, and labor. According to Jennings (1979), Congress's primary purpose in establishing the evaluation requirements was to give local educators and State administrators an opportunity to learn how their programs are operating, and thus to encourage improvement of those programs.

The amendments require vocational educators to determine program quality according to three criteria: effectiveness, efficiency, and relevance. Section 112(b) (1) (A) of the amendments states that these evaluations shall focus on the following:

(a) Planning and operational processes such as:

(1) quality and availability of instructional offerings;

(2) guidance, counseling, and placement and follow-up services;

(3) capacity and condition of facilities and equipment;

(4) employer participation in cooperative programs of vocational education;

(5) teacher/pupil ratios; and

(6) teacher qualifications.

(b) Results of student achievement as measured, for example, by:

(1) standard occupational proficiency measures;

(2) criterion-referenced tests; and

(3) other examinations of students' skills, knowledge, attitudes, and readiness for entering employment successfully.

(c) Results of student employment success as measured, for example, by:

(1) rates of employment and unemployment;

(2) wage rates;

(3) duration of employment; and

(4) employer satisfaction with performance of vocational education students as compared with performance of persons who have not had vocational education.

(d) The results of additional services as measured by the suggested criteria under paragraphs (a), (b), and (c) of this section, that the state provides under the Act to these special populations:

(1) women;

(2) members of minority groups;

(3) handicapped persons;

(4) disadvantaged persons; and

(5) persons of limited English-speaking ability.

Meeting these requirements, especially those in paragraph (c), demands the involvement of business, industry, and labor in this evaluation process. The strategies for involvement discussed in this handbook can be employed to gain and use the input from representatives of the private sector most effectively.

Evaluation is an integral part of the planning process. An effective plan is based on extensive evaluation of the context, needs, resources, and so on of the vocational education program. When the plan is formed, it should be evaluated, as discussed earlier. As outcomes are realized, or phases of the plan are completed, evaluation of effectiveness is in order.

Throughout the evaluation process, representatives of business, industry, and labor should be involved in appropriate ways. The opportunity to aid in judging the value of the plan or program is one most people take seriously and see as an honor. Inviting representatives of the private sector to help with the process of evaluation not only draws upon the knowledge of these individuals, but also helps cement their involvement in the vocational education program.

CHAPTER 6

WORKING TOGETHER: TECHNIQUES FOR EFFECTIVE INVOLVEMENT

The identification of techniques for involving business, industry, and labor in vocational planning and evaluation should flow from the planning and evaluation tasks. The process begins with a determination of priorities and moves on to the selection of tasks and choice of a strategy, as described in chapter 3. Finally, specific techniques are chosen to implement the selected strategy.

The following figures and worksheets are a guide to the process of selecting techniques. Figures 5 and 6 illustrate this process in terms of specific planning and evaluation tasks. Worksheets 2 and 3 are forms for use in choosing techniques through the same process, which moves from task to strategy to technique.

PLANNING TASK

Describe the context and needs for vocational education.

STRATEGY

Increase communication.

Clarification Statement: This will involve determining public opinion regarding the needs of vocational education. An information exchange network will be established to collect relevant and timely information on the context and needs for vocational education in this labor market area.

TECHNIQUE

- Delphi
- Brainstorming
- Discussion

Figure 5. Steps for selection of planning strategies and techniques

EVALUATION TASK

Reassess program needs, goals, and objectives.

STRATEGY

Provide mechanisms for joint decision making.

Clarification Statement: This will involve the establishment of a goal identification, assessment, and selection committee. Group sessions of five business representatives, five industry representatives, five labor union representatives, and four education representatives will be conducted. A survey of local business, industry, and labor representatives will be conducted to provide input for the group sessions.

TECHNIQUE

- Nominal group technique
- Mail survey

Figure 6. Steps for selection of evaluation strategies and techniques

WORKSHEET 2

SAMPLE FORM FOR SELECTION OF PLANNING STRATEGIES AND TECHNIQUES

_____

PLANNING TASK

_____

_____

STRATEGY

_____

Clarification Statement:

_____

TECHNIQUE

_____

WORKSHEET 3

SAMPLE FORM FOR SELECTION OF EVALUATION STRATEGIES AND TECHNIQUES

EVALUATION TASK

STRATEGY

Clarification Statement:

TECHNIQUE

Figure 7 indicates some of the functions specific techniques serve. Many techniques can also be used in ways not shown.

Each description of a technique includes—

- a definition,
- an explanation of how to use the technique,
- its positive and negative attributes, and
- references to documents that provide a detailed description of the technique.

Much of the value of any technique depends on how it is used, so that a guarantee of results is impossible. The skill of the user, the context of the vocational education system, and the intended outcome all influence the effectiveness of a technique. Used properly, these techniques are excellent tools with the capability of involving people of diverse interests in the common goal of improving vocational programs.

The techniques are given in alphabetical order with no implication as to relative effectiveness. Both the manner of presentation and many of the concepts were derived and adapted from Hull and McCaslin's (1977) *Career Education Implementation: A Handbook for Strategy Development*.

These techniques were selected because they seemed particularly useful in working to establish a council. There are many other techniques that may be more suitable for a specific situation. Readers should freely explore other methods. In addition, ways to adapt the techniques included here should be explored.

FUNCTION	TECHNIQUE
Analyzing	audit cause and effect analysis brainstorming discussion DACUM process cause and effect Nominal group technique (NGT) quality circle
Enhancing communication	discussion quality circle
Gathering information	audit Delphi survey
Generating ideas	brainstorming Delphi discussion NGT quality circle
Involving others	Delphi quality circle
Presenting information	illustrated talk
Problem solving	cause and effect analysis discussion NGT process cause and effect
Setting goals	brainstorming discussion NGT process cause and effect

Figure 7. A guide to the uses of selected techniques

SOURCE: Adapted from Hull and McCaslin (1977).

AUDIT

An examination of existing program records in order to verify results, reveal possible weaknesses in procedures, or identify problems.

Description

An audit is conducted by an independent auditor or team of auditors. Audits have in common a four stage process which may be adjusted to the scope and objectives of a specific audit. The steps are given here, although the process is one which should be studied more fully before it is implemented.

- Prepare for the audit
  - —Selection of the audit team
  - —Pre-engagement contact
  - —Auditor familiarization
  - —First draft of the audit plan
  - —Audit entrance conference
  - —Walk-through
  - —Revision of the audit plan
- Conduct the audit
  - —Information gathering through interviews, observation, or review
- Report on the findings
  - —Ongoing reports to the auditee
  - —Flash reports to the audit recipient
  - —Draft report of findings
  - —Audit exit conference
  - —Final report
- Reconcile findings with audit recipient and auditee
  - —Review of findings
  - —Joint agreement on a plan of action
  - —Review of corrective action
  - —Follow-up audit

Discussion

The findings of an audit may support continuation of current efforts or provide impetus for change. In either case, they are ideally used to facilitate policy planning and management. Problems may result when audit findings are misused or simply disregarded.

Recommendations following an audit are more likely to be implemented when they consume minimal time and money, are flexible and present alternatives, call for incremental rather than total change, provide staff with a central and reasonable role, and are concise and easily communicated.

Positive Attributes

- Implies a degree of accountability for compliance to accepted standards
- Aids management in efforts to improve future operations
- Improves understanding
- Provides an opportunity to gather information

Negative Attributes

- May cause auditee to feel threatened
- Can result in development of mistrust
- Can be difficult to locate a competent auditor
- May lead to misuse of results

Related Readings

Adams, Kay A., and Walker, Jerry P. *Improving the Accountability of Career Education Programs: Evaluation Guidelines and Checklist.* Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

Stephens, Nancy F. *Evaluation Guidelines and Practices for State Advisory Councils.* Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1980.

BRAINSTORMING

A technique for developing a large number of creative ideas in a short time.

Description

Brainstorming is most effective when confined to simple, uncomplicated problems or questions. Participation is highest when the group includes about 12 people of approximately the same rank. Each member offers one idea in turn; ideas are not evaluated, discussed, or critiqued. A quantity of free wheeling ideas are sought, and combining or improving ideas is permitted. The optimal length for a brainstorming session is 30 minutes. The steps in brainstorming include the following:

- Define a specific topic for the session.
- Review guidelines for brainstorming.
- Commence brainstorming, recording ideas as they are given; the exhaustion of ideas signals completion.
- Vote on the ideas generated, circling those that receive the most votes.
- Discuss the ideas that receive the most votes and rank them in order of perceived importance.

Discussion

Brainstorming is useful during many phases of planning, such as defining needs, generating goals and objectives, or finding ways to implement solutions. It is a supplemental technique that can be used with both basic and process cause and effect analysis, surveys, discussion, and so on. Brainstorming is based on the principles that one thought leads to another and that more ideas are generated by a group than by the same individuals working alone.

Positive Attributes

- Results in a permanent record of possibilities
- Promotes equal participation
- Leads to piggybacking of ideas
- Is useful in most phases of problem solving

Negative Attributes

- May produce a "bandwagon" effect
- May be dominated by one or two individuals
- Requires time
- Requires that group members have knowledge of a given topic

Related Readings

Larey, Will. "Brainstorming: Guidelines for Generating Ideas." *Training* 19, no. 9 (September 1982): 114-115.

Nickens, John M.; Purga, Adelbert J. III; and Noriega, Penny P. *Research Methods for Needs Assessment*. Washington, DC: University Press, 1980.

Rawlinson, J. G. *Creative Thinking and Brainstorming*. New York: Halsted Press, 1981.

Osborn, A. *Applied Imagination*. New York: Creative Problem Solving Institute, University of Buffalo, 1962.

CAUSE AND EFFECT ANALYSIS

A graphic method for identification of the potential causes of a problem.

Description

This method calls for construction of a "fish bone diagram" as the group brainstorms the possible causes of a problem. A statement of the problem is written to the right on an easel pad and the possible problem groupings—materials, personnel, methods, and materials—are written to the left. The group is likely to incorporate other specific problems groupings as they brainstorm. Following the brainstorming, cause and effect analysis is used to identify the most likely causes. The action steps are as follows:

- Develop a precise statement of the problem.
- Identify and record major causes by category.
- Select the most significant causes.
- Rank the likeliest causes in order of their probable importance through voting (one vote per member).
- Verify those causes designated as most likely to have created the problem.
- Prepare a recommendation for action.

Discussion

The group should work with its own problems, not those belonging to others, when selecting the problem from within its area of work responsibility. The problem or effect may be one identified during an earlier brainstorming session. Cause and effect analysis attempts to explain why the problem or effect exists, and can be used to find the cause of a favorable outcome. In examining possible causes the group should pay particular attention to deviations from the norm and recurring patterns.

Positive Attributes

- Easy to use
- Promotes participation
- Promotes problem solving rather than fault finding

Negative Attributes

- User skill needed
- Problem may be wrongly identified or imprecisely stated
- Can require considerable time

References

Bellanca, James. "Quality Circles: Making Schools Productive." *VocEd* (May 1982): 31-33.

Dewar, Donald L. *Quality Circle Member Manual*. Red Bluff, CA: Quality Circle Institute, 1980.

Mohr, W. L., and Mohr, H. *Quality Circles: Changing Images of People at Work*. Reading, MA: Addison-Wesley, 1983.

DACUM (Developing A Curriculum)

An approach to identifying competencies or tasks that must be performed by persons in specific occupational areas.

Description

A group technique, DACUM involves the processes of analysis, charting, rating, selection, and sequencing. It is graphic in nature, presenting definitions of an entire occupation on a sheet of paper. It is considered to be a form of occupational analysis rather than a curriculum evolving from an analysis. An expert DACUM facilitator is needed to conduct the session.

The DACUM committee consists of 10 to 12 experts in an occupational area who work for 3 days to develop the DACUM chart. These committee members are from business, industry, or the professions, and do not include vocational educators. The general areas of competence required in the occupation are defined and each is subdivided into those individual tasks that collectively enable an individual to perform competently within that general area. Each task can later serve as an independent goal for learning achievement. The committee follows these steps:

- Provide introduction and orientation.
- Review a description of the specific job or occupational area.
- Identify the general area of competence.
- Identify the specific skills for each area of competence.
- Review, refine, and sequence the skill statements.
- Establish levels of competence for each skill.
- Structure the competency profile chart at the end.

Positive Attributes

- Serves as a flexible tool for occupational and subject analyses
- Involves workers from the occupation who can represent the area accurately
- Results are useful for multiple purposes

Negative Attributes

- Cannot be conducted without a trained facilitator
- Is time-consuming

References

Sinnett, W. E. *The Application of DACUM in Retraining and Postsecondary Curriculum Development*. Toronto, Ontario: Humber College of Applied Arts and Technology, Randa Division, 1974.

Buchar, F. J. "DACUM Dialogue: Answering Basic Questions." *CTM: The Human Element* 14, no. 5 (February 1982): 20-24.

Norton, R. *DACUM: Developing a Curriculum*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

DELPHI TECHNIQUE

A reliable way to obtain the consensus of a group of persons with expertise in a field.

Description

The Delphi is essentially a series of questionnaires, interspersed with information and summaries of feedback from earlier questionnaires. Each questionnaire is built upon responses to the preceding questionnaire, and the rounds of questioning stop when consensus is neared or sufficient information has been obtained. The final analysis considers the information gathered from all rounds of the Delphi. Consensus is not measured by percentage of votes in a prescribed range, but by the stability of respondents' vote distribution curve over successive rounds. A marginal change of less than 15 percent defines stability. Delphi participants need not meet face to face. There can be several panels of participating experts; each should have a least seven members. The steps in conducting a Delphi include the following:

- Designate a person or persons to conduct and monitor the procedure.
- Involve people with expertise in the field.
- Develop the first questionnaire internally, or by requesting questions from experts regarding the topic to be studied.
- Send the first questionnaire to the panelists.
- Analyze first-round responses; when a participant's response differs from the consensus, request further information or justification for this point of view.
- Prepare and transmit a second-round questionnaire containing feedback on the results of the first round.
- Analyze the second-round responses.
- Conduct further rounds if desired.
- Analyze the overall results.
- Report the findings to panelists.

Discussion

The Delphi is useful when individual judgments must be tapped and combined, when there is disagreement, and when knowledge is incomplete. It can be used to define either the nature of the problem or the components of a successful solution. It is a problem-solving or idea-generating strategy.

Positive Attributes

- Is relatively low in cost
- Does not require participants to meet
- Avoids domination by a single personality, so that a "bandwagon" effect is unlikely
- Generates ideas and solutions
- Yields a pooled judgment

Negative Attributes

- Is time consuming
- Can reflect the typical pessimism of long-range forecasts and undue optimism of short-range forecasts

References

Delbecq, Andre L.; Van de Ven, Andrew H.; and Gustafson, David H. *Group Techniques for Program Planning*. Glenview, IL: Scott, Foresman, 1975.

Helmer, Olaf. *Analysis of the Future: The Delphi Method*. Santa Monica, CA: The Rand Corporation, March 1967.

Hopkins, Charles O.; Ritter, Kenneth L.; and Stevenson, William W. *Delphi: A Planning Tool*. Stillwater: Division on Research, Planning, and Evaluation, Oklahoma State Department of Vocational and Technical Education, January 1973.

Lewis, Morgan, and Russell, Jill F. *Trends, Events, and Issues Likely to Influence Vocational Education in the 1980s*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, April 1980.

Linstone, Harold A. "The Delphi Technique." In *Handbook of Futures Research*, edited by Jib Fowles, Westport, CT: Greenwood Press, 1978.

Parker, James T., and Taylor, Paul G. *The Delphi Survey*. Belmont, CA: Fearon Pitman, 1980.

DISCUSSION

A technique for promoting the verbal exchange of ideas and perspectives on selected topics.

Description

A discussion should be based on accurate information and facts rather than uninformed opinion and emotion. To be productive, a discussion requires thoughtful planning and leadership. Useful steps in conducting a discussion include the following:

- Prepare a list of pertinent leading questions.
- Introduce a topic; define the limits of the topic, and set the time schedule.
- Promote participation unobtrusively, clarifying the problem, defining new terms, correcting misunderstandings and misinterpretations, and helping participants express their ideas.
- Summarize periodically. If appropriate, play devil's advocate.
- Draw conclusions, formulate consensus view, and suggest ways to improve the discussion.
- Lead group in deciding whether further action is advisable.

Discussion

Topics for discussion should grow from planning and evaluation activities and should be part of the process of forming and exploring new relationships between ideas and data. Discussion is useful for improving problem solving and group communication, and can be used to lead directly to definite group decisions and goal setting.

Positive Attributes

- Exchanges and tests ideas
- Stimulates thought and analysis
- Promotes active involvement, a sense of ownership, and perceived relevance on the part of participants

Negative Attributes

- Is not ideal for presenting information
- Consumes time
- May lead to an unbalanced presentation of various points of view
- Involves more talk than action

Further Readings

The National Center for Research in Vocational Education. *Conduct Group Discussions, Panel Discussions, and Symposiums*. Module C-17 of Category C. *Instructional Execution Professional Teacher Education Module Series*. Athens, GA: American Association for Vocational Instuctional Materials, 1977.

ILLUSTRATED TALK

An oral presentation supplemented with illustrative aids, used to convey a body of information to a large group.

Description

An illustrated talk is useful in large group situations where individual attention and interaction are impractical. This method is particularly suitable when the audience knows little about the topic, since the presenter is able to synthesize information from several sources into an organized presentation. The illustrated talk is most effective when the presenter possesses public speaking skills and the audience is able to listen attentively and possibly take notes. The steps of an illustrated talk include the following:

- Plan the presentation, including purpose, introduction, key points, summary, and evaluation.
- Be thoroughly familiar with your material.
- Deliver the presentation: use public speaking skills such as—

  good audience contact,

  an enthusiastic manner,

  clear, audible speech,

  gestures for emphasis, and

  a conversational and natural style of delivery.

- Follow the presentation with discussion, open questions, or another activity that will indicate how well the information was communicated.

Discussion

The talk should be planned around the audience rather than the material. It should have relevance for the attending group by virtue of its focus on issues that have been or will be covered in the planning and evaluation process. The illustrations used to clarify concepts can be verbal, visual, or both. Useful verbal illustrations include analogies, frames of reference, and examples. Visual illustrations can be graphs, diagrams, slides, and so on; the use of audiovisual techniques demands thorough familiarity with the equipment and careful preparation.

Positive Attributes

- Can convey information well
- Can be tailored to the audience

Negative Attributes

- Demands good public-speaking skills; otherwise, may lack liveliness and spontaneity
- Promotes more interaction with the instructor than with the information
- Creates difficulty in monitoring audience comprehension

Related Readings

The National Center for Research in Vocational Education. *Present an Illustrated Talk*. Module C-15 of Category C. *Instructional Execution Professional Teacher Education Module Series*. Athens, GA: American Association for Vocational Instructional Materials, 1977.

NOMINAL GROUP TECHNIQUES (NGT)

A process for gaining consensus on a problem or issue, developing solutions, and identifying priorites.

Description

This is a procedure for obtaining consensus on a problem or issue, developing solutions, and identifying priorities. The NGT consists of generating, listing, discussing, and voting on responses to a predetermined question. The final vote combines individual judgment into a group decision or consensus.

An NGT session begins with a clear, concise definition of the NGT steps and time for questions and answers about the process. The steps continue as follows:

- **Phase 1**

  Clearly worded task statement is presented.

  Participants write responses (10 minutes).

- **Phase 2**

  Each member states one response (or chooses to pass); there is no discussion.

  Responses are recorded on a large easel pad.

  Members augment their lists if they choose.

- **Phase 3**

  Items are clarified without evaluation.

- **Phase 4**

  Each participant ranks all items in writing, with the lowest being number one.

  During a break, results are tallied and recorded on the easel pad.

  Results are discussed.

Discussion

The ideal NGT group has between 5 and 12 participants. Larger groups should be divided into groups of this size and concurrent sessions held with one large summary session at the conclusion. The process can be completed in 90 minutes to 2 hours.

Positive Attributes

- Gives group members an equal voice
- Is problem solving and goal oriented
- Depersonalizes ideas
- Accommodates several ideas at one session
- Tolerates conflicting ideas
- Promotes piggybacking of ideas
- Provides a mechanism for participation and involvement of group members

Negative Attributes

- Not suited to less-involved or less-complex problems and discussions
- Time consuming
- Requires a leader with skill, confidence, legitimacy

References

Delbecq, A.; Van de Ven, A.; and Gustafson, J. *Group Techniques for Program Planning*. New York: Scott, Foresman, 1975.

Coke, J. G., and Moore, C. M. *Guide for Leaders Using Nominal Group Technique*. Columbus, OH: Academy for Contemporary Problems, 1978.

PROCESS CAUSE AND EFFECT ANALYSIS

A technique for working from a problem to its cause in order to see where a breakdown may have started.

Description

This method is distinguished from basic cause and effect analysis by its analysis of a sequence of steps. The problem statement is written to the right on an easel pad or chalkboard and the steps in the process are broken down and written as "blocks" leading to the problem. Each step of the sequence should be fully brainstormed. The steps are as follows:

- Identify the problem as precisely as possible.
- Determine the process sequence—the blocks—by working either backward from or forward to the problem.
- Depict the sequence graphically with cause-effect illustration.
- Brainstorm on possible causes, recording the ideas generated.
- Examine all ideas and vote on those considered most important (multiple votes per person are allowed); record the vote.
- Circle the two or three causes receiving the most votes, and rank in order of importance.
- Discuss each cause and take a final vote (one vote per participant).
- Record the vote and rank possible causes according to votes received.
- Verify the identified major cause.
- Make recommendations and present the chosen solution.

Discussion

Process cause and effect analysis is advantageous in cases where a sequence of steps does lead to the effect. Identifying the blocks in the sequence often lends insight to the diagnostic process and can ultimately save time by pinpointing the source of a problem.

Positive Attributes

- Promotes participation
- Promotes problem solving rather than fault finding

Negative Attributes

- Requires skill in using the method
- Requires precise identification of the problem
- Is inaccurate if an erroneous process sequence is established

Related Readings

Bellanca, James. "Quality Circles: Making Schools Productive." *VocEd* (May 1982): 31-33.

Dewar, Donald L. *Quality Circle Member Manual*. Red Bluff, CA: Quality Circle Institute, 1980.

QUALITY CIRCLE

A group process to bring about improved work environments and productivity with total work force involvement.

Description

This method is used within a defined work environment, and can be instituted with the teaching and/or administrative staff within a vocational education system. Five to ten employees from one area meet regularly and voluntarily to identify, analyze, and solve problems. The basic steps in the process are as follows:

- Identify voluntary participants.
- Participants establish goals.
- Participants are trained in problem solving.
- Group selects a facilitator.
- Group analyzes and prioritizes problems.
- Team responsibilities for implementing recommendations are defined.

Discussion

This process brings together a group of workers who volunteer to share responsibility for a function or task in order to produce a product or service. Quality circles usually meet to identify, analyze, and generate solutions to priority problems defined by the group.

Ideally, group members are given instruction in group communications, interpersonal skills, problem-defining and problem-solving strategies, motivation, and leadership skills. The measurement techniques and quality strategies also taught to this group may include check sheets and graphs, cause and effect diagrams, pareto diagrams and histograms. For advanced quality circles, more advanced measurement and quality strategies are taught, such as sampling methods, control charting, and other methods.

Positive Attributes

- Provides opportunity for staff involvement
- Encourages employer-employee participation on critical work environment problems
- Assists in improvement of productivity

- Addresses questions of cost reduction
- Provides basis for improving employee self-esteem

Negative Attributes

- Requires weekly meetings; can be time consuming
- Increases costs in terms of time spent away from production
- Creates additional responsibilities for personnel
- Requires additional training for members

References

Harris, P. R. *New World, New Ways, New Management*. New York: AMACON, 1983.

Harshman, Carl L. *Quality Circles: Implications for Training*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Lloyd, Russell F., and Rehg, Virgil R. *Quality Circles: Applications in Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Maccoby, M. *The Leader: A New Face for American Management*. New York: Simon and Schuster, 1981.

Mohr, W. L., and Mohr, H. *Quality Circles: Changing Images of People at Work*. Reading, MA: Addison-Wesley Publishing Co., 1983.

Ouchi, W. *Theory Z: How American Business Can Meet the Japanese Challenges*. Reading, MA: Addison-Wesley Publishing Co., 1981.

Yankelovich, D. *New Rules: Searching for Self-Fulfillment in World Turned Upside Down*. New York: Random House, 1981.

SURVEY

A procedure for gathering information about a population with respect to a given area of concern or question.

Description

This method typically collects data from a sample of a population, most commonly through questionnaires, or through direct or telephone interviews. The representativeness of a mail survey depends heavily on the clarity and quality of the data-gathering instrument completed by the respondents. In telephone surveys the quality of the interviewers, who must interact with respondents and accurately record all information, is very important. Steps in a survey include the following:

- Formulate the problem and the information needed.
- Determine the question(s) to be asked and develop or adopt a data-gathering instrument.
- Designate the population to be surveyed and/or select sample respondents.
- Specify procedures for data collection.
- Collect data and report findings.

Discussion

Surveys can be an inexpensive procedure for gathering information, as well as a means of communicating with large numbers of individuals. Tables are available for the determination of a sample size that will provide an acceptable level of accuracy. Surveys do not need to be large or complex. Cooperation with local agencies or institutions before the initiation of the survey can contribute to the study design and to the resources available to conduct the work.

Positive Attributes

- Gathers a large body of data
- Provides insight into how a population views a problem or question
- Is relatively low in cost

Negative Attributes

- Is time consuming
- Requires expertise in questionnaire design, data processing, and analysis
- May conclude with an insufficient response rate

Related Readings

Dillman, Don A. *Mail and Telephone Surveys*. New York: John Wiley and Sons, 1978.

Nickers, John M.; Purga, Adelbert J., III; and Noriega, Penny P. *Research Methods for Needs Assessment*. Washington, DC: University Press of America, 1980.

Nunez, Ann R., and Russell, Jill F. *As Others See Vocational Education, Book 2: A Survey of the National Conference of State Legislatures*. R & D Series No. 225B. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Franchak, S. J., and Smiley, J. *Evaluating Employer Satisfaction*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Ponce, E., and Franchak, S. J. *Evaluating Student Satisfaction*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

APPENDICES

Appendix A

Analysis of Existing Data

Existing data or information were used to conduct secondary analysis regarding the perceptions and conditions surrounding business, industry, and labor involvement in the evaluation and planning of vocational education. Several recent studies (Coleman and Crowe 1981; McKinney et al. 1981; Nunez and Russell 1982) have included questions that relate generally to the involvement of business, industry, and labor in vocational education. Although specific evaluation and planning issues were not the focus of these studies, it was apparent that some of the questions could help illuminate the problem addressed by this study. Existing databases from previous studies relating to business, industry, and labor linkages were the primary sources for the secondary analysis of data. For example, efforts in business-labor-education collaboration have been conducted by the National Institute for Work and Learning (Elsman 1981) and the National Association for Industry-Education Cooperation (Clark 1982). Other organizations working to facilitate collaboration are the Chamber of Commerce of the United States, the National Association of Manufacturers, and the AFL-CIO Department of Education and Human Resources Development Institute.

Open-ended discussions with State research coordinating unit (RCU) directors and State and local evaluation and planning coordinators were held to identify evaluation and planning studies that were not included in the normal stream of information dissemination. These individuals were also asked to nominate exemplary efforts in their respective states that involve employers and labor representatives and vocational educators in planning and evaluation. Criteria used in this process included the following:

- A minimum of five vocational education program areas in the local education agency
- Documented evidence of business, industry, and labor involvement in local education program reviews and local program plan development
- Local education agencies located in (1) a central city with a metropolitan population over 500,000, (2) a city or town with a population of 25,000-100,000, (3) a town or region with a population below 25,000
- Willingness of local education agencies and industries to participate in the study
- Consideration of task constraints, such as level of funds, staff, and time

Information was secured about these efforts by telephone conference calls and mail correspondence. Information was also collected at working sessions of meetings of the annual conferences of the American Association for Community and Junior Colleges (AACJC), the American Vocational Association (AVA), and major conferences of State vocational education associations.

Appendix B

Analysis of Case Studies

Case studies of exemplary business, industry, and labor involvement in the evaluation and planning of vocational education were conducted at three sites. These case studies provided a comprehensive base of information for developing guidelines that will work in local settings. Data were collected through the examination of documents, by open-ended discussions with appropriate personnel, and by observations. Telephone discussions were conducted when necessary to verify or clarify information. Additionally, specific strategies and procedures were identified for development, refinement, and dissemination.

Methodology proposed by Patton (1980) and Guba and Lincoln (1982) provided the basic steps in designing the case study. These included setting boundaries, defining the unit of analysis, selecting sites, establishing initial contacts, developing data collection systems, defining fieldwork procedures, collecting data, and analyzing data.

The data from the case studies were collected and stored according to the respondent's role as practitioner, decision maker, and/or policymaker. These interviewees included members of chambers of commerce, manufacturers' associations, labor unions, personnel directors, advisory committees, department heads, governing boards, chief administrators, teachers, program directors, and others considered to be participants in the development of human resources for the needs of industry. Following the completion of the on-site fieldwork, the information was analyzed for major themes or issues and for information supporting these themes or issues. A brief summary of the information collected via the case studies is presented in appendix C.

The two complementary approaches just described above provided the basis for the synthesis and integration of information. This synthesis and interpretation determined areas of agreement/disagreement, identified gaps in the information base requiring additional study, and provided a basis for developing workable strategies, procedures, and techniques for inclusion in the handbook.

Appendix C

Case Site Reports

This section contains three case site summaries of exemplary efforts of public secondary and postsecondary schools to involve business, industry, and labor in vocational education planning and evaluation. Each site represents a special industrial setting, geographically and economically distinct, with its own unique educational structure. One site represents an eastern State in a labor market dominated by the manufacturing industries. Another site located in the midwest is characterized as having a diverse industrial base, and the third site in a rural western State is described as an agricultural area.

The summaries were developed around the four major study questions:

- What changes are needed in the planning and evaluating of secondary and postsecondary vocational education if input from business, industry, and labor is to be included?
- What specific decision-making activities should vocational educators and representatives of business, industry, and labor undertake in planning and evaluating secondary and postsecondary vocational education?
- How can vocational education, business, industry, and labor implement planning and evaluating activities in secondary and postsecondary vocational education?
- What process activities address the involvement of vocational educators, and representatives of business, industry, and labor in evaluating secondary and postsecondary vocational education?

The following conclusions were reached after the case site studies had been completed.

What changes are needed in the planning and evaluation of secondary and postsecondary vocational education if input from business, industry, and labor is to be included?

Education staff directly responsible for a business, industry, and labor/education program should have (1) business, industry, labor experiences, and (2) experiences at various levels of the educational system (teacher, supervisor, principal, superintendent). Top management support is important and must be constant over time. This support includes a statement of philosophy and a mission statement that explicitly supports business, industry, and labor in educational involvement in planning and evaluation; attendance at meetings (business, industry, labor, education, community service organizations); and participation on business, industry, and labor boards.

Schools serving the same labor market area must coordinate their efforts to pool resources, eliminate duplicated programs, and develop a unified approach to serving employers. Such coor-

dination can provide swifter response to industry requests and eliminate red tape. Schools also must be flexible with regard to scheduling and instructional style. Involvement in economic development activities tends to bring educators and business, industry, and labor closer together.

What specific decision-making activities should vocational educators and representatives of business, industry, and labor undertake in planning and evaluating secondary and postsecondary vocational education?

Craft committees or program steering committees can play strong roles in planning and evaluation. Every time they review a curriculum guide or evaluate a request for new equipment, they are involved in specific decision making. Educational personnel must often work with business, industry, and labor to help identify particular training problems. This includes identification of program needs, development of goals and objectives, specification of outcomes, participation in program or instructional decision making, and shared input into financial program decisions. For all activities, defining the rules and guidelines relating to individual group responsibilities is essential.

How can vocational education, business, industry, and labor implement planning and evaluating activities in secondary and postsecondary vocational education?

Involving business, industry, and labor at the initial stages of vocational education program development is basic to effective cooperation in planning and evaluation. Advisory committees or councils are one means of introducing business, industry, and labor input into planning and evaluation. The representatives of industry must recognize the constraints under which educational institutions operate. A variety of additional formal and informal contacts also are necessary to develop a spirit of mutual trust between education and business, industry, and labor representatives. For example, weekly breakfast meetings can contribute to such a spirit. Educational representatives who can commit their institutions to respond to private sector suggestions and requests also facilitate viable input.

What process activities address the involvement of vocational educators, and representatives of vocational education, business, industry, and labor in planning and evaluating secondary and postsecondary vocational education?

One common role is responding to follow-up study questions about graduates. A periodic evaluation audit of all programs, perhaps once every 5 years, involves business, industry, and labor in sufficient ways. Industry representatives can provide information about program completers, review the curriculum and equipment being used in the program, and compare the skills and interests of current students to the present and future needs of business, industry, and labor. Evaluation of customized training is another useful input. Generally, an oral or written summary of recommendations is prepared for the purpose of improving the program.

Case Site Summaries

Case Site 1

A summary of the key structural elements of the cooperation between education and business, industry, and labor in this area includes the following:

- An administrative component of the community colleges that focuses on outreach.
- A "career education cooperative" that brings together all the vocational education providers.
- A functioning private industry council that existed prior to legislative mandate.
- One community college has weekly breakfast meetings where business leaders learn about the college and what it can do for them.
- Representatives from the education sector join chamber of commerce personnel in meetings with companies relocating to the area.
- A long-range planning document—"Planning for the 80s"—was prepared that involved input from all sectors.
- One company has loaned a half-million dollars worth of up-to-date equipment to the schools, and will continue to put in state-of-the-art equipment as it is available. This modern equipment will be used both for students in the vocational program and for company employees' training.
- Articulation between some secondary and postsecondary programs has taken place.
- Schools share expensive equipment and facilities so that students from more than one school have access, while duplication is avoided.

The basic ingredients (from the educator's perspective) to the successful cooperative effort appear to be the following:

- Institutional flexibility, adaptability, and quick turnaround time
- Emphasis on research, evaluation, and strategic planning
- Constant personal contact with the business community
- Active seeking of grants for customized training
- Writing and dissemination of results
- Trust between school staff members
- Involvement in local economic development efforts
- A marketing approach that stresses needs assessment, input, and evaluation
- Active advisory committees
- Use of evaluation as both an auditing and feedback process

Case Site 2

The key structural elements of the cooperation between education and business-industry in this area appeared to be the following:

- A strong cooperative education program
- Required teacher contact with business
- A strong advisory committee structure
- Regular evaluation processes

Some examples of cooperation among the parties that were cited during the interviews follow:

- A degree program (initiated at the request of business-industry) was developed and approved within a 3-month time span.
- A motorcycle shop has vocational students place their orders for parts for use in school classes through them. The students have to drive across town to pick up the parts; they learn quickly to be careful in ordering.
- Business-industry representatives help determine criteria for employment qualifications for teachers in new subject areas.
- A training program for migrants was established on the basis of input from business-industry and funds from private foundations.
- Business people are involved in vocational education curriculum development.
- The school takes its equipment to work sites for training of employees.

The basic ingredients (from the educator's perspective) at this site that contribute to the successful cooperative effort appear to be the following:

- An extensive staff development program for faculty requirements for teachers to have contact with business-industry
- Trust in faculty members to make changes and contacts on their own initiative
- Individual autonomy of faculty members
- An extensive co-op program
- Making genuine use of advisory committee members, whether through regular meetings or individual contact by teachers
- Active outreach efforts to business-industry
- Surveys of employer needs by formal and informal methods

- Active seeking of grants for customized job training
- Flexibility and quick responsiveness to requests from business

Case Site 3

The summary of key structural elements of the cooperation among education, business, industry, and labor focused on a building trades apprenticeship training program that is a joint effort of business, industry, labor, and education. The school corporation operates the entity but industry funds it to a large extent. All groups are involved in its curriculum planning, student evaluation, establishing class size, and other policy decisions. The program has a long history of development and operation. Many of its administrators and instructors formerly practiced a trade. The advisory committee structure is strong and communication between all parties is frequent and open, even if there are concurrent difficulties in labor-management negotiations.

Key elements supporting involvement in planning and evaluation include the following:

- Strong leadership and commitment
- Ongoing communication
- An honest attempt to see the other side's perspective
- A sense of ownership among all parties

For example, the superintendent of schools is at every graduation event. Owners of individual companies will volunteer needed materials and supplies on a continuing basis to support the program.

Evaluation and planning involvement encompasses both formal and informal activities. These include the following:

- Evaluation primarily upon repeat requests from an employer for additional students or apprentices
- One- and five-year follow-ups of students and apprentices
- Planning input from advisory committee meetings and on a one-to-one basis between instructors, employers, and union representatives

FURTHER READINGS

Ackoff, R. L. "Our Changing Concept of Planning." *The Journal Of Nursing Administration* 12 (1982): 35-40.

Adams, K. A., and Walker, J. P. *Improving the Accountability of Career Education Programs: Evaluation Guidelines and Checklists*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

AFL-CIO Committee on the Evolution of Work. *The Future of Work*. Washington, DC: AFL-CIO, 1983.

American Vocational Association. *Building a Partnership: Vocational Education and the Private Sector*. Arlington, VA: American Vocational Association, 1983a.

_____. *Vocational Education and Business: A Working Partnership: AVA Resource Kit*. Arlington, VA: American Vocational Association, 1983c.

Atteberry, J. W.; Miller, W. R.; and Pershing, J. A. *Improving Vocational Education Planning: More Myth Than Reality?* Columbia, MO: Department of Practical Arts and Vocational-Technical Education, 1977.

Averill, D. F. "The Mission of Vocational Education and Trends in Training Delivery." In *Collaboration: Vocational Education and the Private Sector*. Arlington, VA: American Vocational Association, 1983.

Bhaerman, R. D. *Career Education: Collaboration with the Private Sector*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Bok, D. "Balancing Responsibility and Innovation." *Change* 14, no. 6 (September 1982): 16-25.

Braden, P. V. "The Economic Development Role of Vocational Education." In *Collaboration: Vocational Education and the Private Sector*. Arlington, VA: American Vocational Association, 1983.

Brant, L. *Customized Training for Now and Expanding Industry—A Vocational Education Role in State and Local Economic Development*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Brower, S. M. *Mechanisms for Vocational Education-CETA Coordination*. Raleigh, SC: Conserva, 1980.

Burt, S. M. "Industry and Community Leaders in Education: The State Advisory Councils on Vocational Education." A staff paper. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research, 1969.

_____. *Use of Industry-Advisory Committees as a Technique for Evaluating Vocational and Technical Education Programs*. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research, 1968.

Carnevale, A. P. *Human Capital: A High Yield Corporate Investment*. Washington, DC: American Society for Training and Development, 1982.

Carnevale, A. P., and Goldstein, H. *Employee Training: Its Changing Role and Analysis of New Data*. Washington, DC: American Society for Training and Development, 1983.

Choate, P. *Retooling the American Work Force: Toward a National Training Strategy*. Washington, DC: Northeast-Midwest Institute, 1982.

Clark, D. M. "A Post-Industrial Perspective on Improving Joint Efforts between Education and the Employment Community." In *Job Training for Youth*, edited by R. E. Taylor, H. Rosen, and F. Pratzner. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

_____. *Community Based Career Education Advisory Councils: A Mechanism for Local Collaborative Efforts*. Buffalo, NY: The National Association for Industry-Education Cooperation, 1978.

_____. *Displaced Workers: A Challenge for Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Cochran, L. H.; Phelps, L. A.; and Cochran, L. L. *Advisory Committees in Action: An Educational/Occupational/Community Partnership*. New York: Allyn and Bacon, 1980.

Conner, J. E.; Kaufman, R. A.; Lessinger, L. M.; and McVity, R. L. *Independent Educational Management Audit: A System Approach*. Washington, DC: College/University Press, 1973.

Controller General of the United States. *What Is the Role of Federal Assistance for Vocational Education—Report to the Congress*. Washington, DC: General Accounting Office, 1974.

Deming, B. S. *Evaluating Job-Related Training*. Englewood Cliffs, NJ: American Society for Training and Development, 1982.

Dupont, P. S., IV. "Retooling the Workforce: The Need for a National Employment Policy." Speech presented at the National Press Club, 18 January 1983.

Duvall, M. R. *A Study of Quick-Start Economic Development Programs*. Washington, DC: Office of Vocational and Adult Education, U.S. Department of Education, 1983.

Education Commission of the States. *Evaluation of Vocational Education: Roles, Responsibilities, and Response of State and Federal Agencies*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

_____. *Action for Excellence*. A report of Task Force on Education and Economic Growth, Governor James B. Hunt, North Carolina, Chairperson. Denver, CO: Education Commission of the States, 1983.

Edwards, K. R., and Carroll, T. M. "Issues in Collaboration between Organized Labor and Vocational Education." In *Collaboration: Vocational Education and the Private Sector*. Arlington, VA: American Vocational Association, 1983.

Etzioni, A. *Reindustrialization and Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Evans, R. E. *Vocational Education and Reindustrialization*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Evans, R. N. "Symbiosis and Parasitism—Perspectives for Industrial Educators." *School Shop* 42 (1983): 82-83.

_____. "Vocational Education and Reindustrialization." In *Contemporary Challenges for Vocational Education*, edited by K. B. Greenwood. Arlington, VA: American Vocational Association, 1981.

Feldman, M. *Work, Employment, and the New Economics*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Ferris, R. I., and Arbeiter, S., eds. *Bridging the Gap: A Study of Education-to-Work Linkages*. New York: College Entrance Examination Board, 1975.

Flaherty, E. W., and Morell, J. A. "Evaluation Manifestations of a New Field." *Evaluation and Program Planning* 1 (1978): 3.

Franchak, S. J. *Factors Influencing Program Decisions in Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Franchak, S. J., and Stevenson, W. W. *A Third-Party Evaluation of Four Iowa Area Planning Councils: Final Report*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Glover, R. W. *Collaboration in Apprenticeship Programs: The Experience with In-School Apprenticeships*. Austin, TX: Center for the Study of Human Resources, 1983.

Godla, L. "Talk Linkage with Industrial Arts? You'd Better! That's Where It All Begins." *School Shop* 42 (1983): 79-81.

Gold, G. G.; Fraser, B. S.; Elsman, M.; and Rankin, J. *Industry-Education-Labor Collaboration: A Directory of Collaborative Councils*. Washington, DC: National Institute for Work and Learning, 1981.

Greenwood, K. *Strategies for Involving the Private Sector in Job Training Programs*. College Station: Texas A&M University, 1981a.

Greenwood, K. B., ed. *Contemporary Challenges for Vocational Education*. Arlington, VA: American Vocational Association, 1981b.

Harris, P. R. *New World, New Ways, New Management*. New York: AMACOM Book Division, 1983.

Hemmings, M. "Report of U.S. Chamber of Commerce Survey of Attitudes of Employers toward Vocational Education." Presented to the Spring 1982 conference, National Association of State Directors of Vocational Education. Rosslyn, VA: 29 April 1982.

Hensley, G. "Enhancing Business and Industry Participation in Career Education." In *Two Studies on the Role of Business and Industry and Labor Participation in Career Education*. Washington, DC: National Advisory Council for Career Education, 1977.

_____. "Problems and Possibilities of Increased Interaction Among Business, Industry, and Education." *Journal of Career Education* 4, no. 3 (Winter 1978): 24-33.

Honicky, D. U. "It's Time We Got Together." *AGB Reports* 31, no. 1 (January-February 1979): 41-46.

Hoyt, K. B. "A Practical Look at Building and Implementing a Realistic, Workable Industry-Education Link." *School Shop* 42 (1983): 75-77.

_____. "Career Education and Collaboration." In *New Directions for Education and Work* (Special Issue on Implementing New Education Work Policies) 3 (1978): 11-17.

Huddleston, K. F., and Fenwick, D. "The Productivity Challenge: Business/Education Partnerships." *Training and Development Journal* 37, no. 4 (April 1983): 96-100.

Jung, S. M., and Steel, L. *Business/Industry/Labor Involvement in Career Education: A National Survey*. Palo Alto, CA: American Institutes for Research, 1981.

Katz, D. S. *Volunteers in Vocational Education: A Handbook for Program Development*. Raleigh, NC: Conserva, 1982.

Koble, D. E., and Long, A. E. *Improving State Level Vocational Planning and Evaluation*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1978.

Kopp, L., and Cap, O. *Business/Industry/Labor and Personnel Development in Vocational Education*. Columbus: The ERIC Clearinghouse on Career Education, The Center for Vocational Education, The Ohio State University, 1977.

Lamar, C. S., ed. *Comprehensive Planning for Vocational Education: A Guide for Administrators*. Arlington, VA: American Vocational Association, 1978.

Lamar, C. S.; Gyuro, S. J.; Burkett, L. A.; and Gray, K. E. "An Overview of Comprehensive Planning." In *Comprehensive Planning for Vocational Education*, edited by Carl S. Lamar. Arlington, VA: American Vocational Association, 1978.

Lecht, L. A. "Vocational Education in the Economic Development Enterprise: Policy Options." In *Contemporary Challenges for Vocational Education*, edited by K. B. Greenwood. Arlington, VA: American Vocational Association, 1981.

_____. *Vocational Education as a Participant in the Economic Development Enterprise: Policy Options for the Decade Ahead*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Lewis, M. V., and Russell, J. F. *Trends, Events, and Issues Likely to Influence Vocational Education in the 1980s*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Lewis, M. V.; Fraser, J. L.; and Unger, P. V. *Anticipating Future Influences on Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984.

Lipson, J. I. "Adapting Technology for Instructional Delivery." In *Collaboration: Vocational Education and the Private Sector*. Arlington, VA: American Vocational Association, 1983.

Madaus, G. F.; Scriven, M.; Stufflebeam, D. L. *Evaluation Models: Viewpoints on Educational and Human Services Evaluation*. Boston: Kluwer-Nijhoff Publishing, 1983.

Mann, P. *An Invitation: Participate in the Evaluation of Vocational Education Programs*. Bloomington, IN: Vocational Education Services, 1980.

Martin, S. T.; Williams, G. D.; and Davin, E. P. *Apprenticeship-School Linkage Implementation Manual*. Washington, DC: CSR, 1981.

Maurice, C. "Private Involvement with the Vocational Community—An Analysis of Policy Options." A paper presented at the National Seminar on Policy Alternatives in Vocational Education, Washington, DC, 15 December 1983.

Moody, O. "A Message from the State Director of Vocational Education." *South Carolina Vocational Education Journal* 1 (1982): 1-12.

Moss, J. M. "Is Vocational Education Ready for Collaboration?" In *Collaboration: Vocational Education and the Private Sector*. Arlington, VA: American Vocational Assocation, 1983.

National Advisory Council on Vocational Education. *Resource Book for Members: State Advisory Councils on Vocational Education*. Washington, DC: National Advisory Council on Vocational Education, March 1973.

National Institute of Education. *The Vocational Education Study: The Final Report*. Vocational Education Study Publication no. 8. Washington, DC: National Institute of Education, September 1981.

Paul, K. C., and Carlos, E. A. "The Role of Vocational Education in Economic Development." In *Contemporary Challenges for Vocational Education*, edited by K. Greenwood. Arlington, VA: American Vocational Association, 1982.

Paul, K. K., and Carlos, E. A. *Vocational Educators' Handbook for Economic Development*. Arlington, VA: American Vocational Association, 1981.

Prager, A.; Goldberg, J.; Cohen, M.; and Finn, P. *Education and Work Councils: Progress and Problems*. Cambridge, MA: Abt Associates, 1980.

Pratzner, F. C. "Look before You Leap Aboard the Industry/Education Bandwagon." *Journal of the American Vocational Association* 58, no. 7 (1983): 13-14.

Pratzner, F. C., and Russell, J. F. *The Roles and Functions of Vocational Education: Some Current Perspectives*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

The President's Task Force on Private Sector Initiatives. *Building Partnerships*. Washington, DC: The President's Task Force on Private Sector Initiatives, 1982.

Pryor, D. "Training in the Corporate World: Juggling, Educating, and Jungle Fighting." *Training and Development Journal* (1983): 17-20.

Scheu, R. "Keeping Pace with Technology Growth and Development." *South Carolina Vocational Education Journal* 2 (1983): 3-8.

Sherman, S. W., ed. *Education for Tomorrow's Jobs*. Washington, DC: National Academy Press, 1983.

Starr, H., and Dieffendoerfor, R. A. *A System for Statewide Evaluation of Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1972.

Starr, H.; Maurice, C.; Merz, H.; and Zahniser, G. *Coordination in Vocational Education Planning—Barriers and Facilitators*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1980.

Struening, E. L. "Social Area Analysis as a Method of Evaluation." In *Handbook of Evaluation Research*. Vol. 1, edited by E. L. Struening and M. Guttenberg. Beverly Hills, CA: Sage, 1975.

Stufflebeam, D. L.; Foley, W. J.; Gephart, W. J.; Guba, E. G.; Hammond, R. L.; Merriman, H. O.; and Provus, M. M. *Educational Evaluation and Decision Making*. Itasca, IL: F. E. Peacock Publishers, 1971.

Thrane, L. C., and Jahnke, J. J. *Building Partnerships—CBOs, CETA, and Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Van Ast, J.; Holmberg, D.; and Myers, D. D. *A Resource Guide on Local Vocational Education Advisory Councils for Administrators and Instructors*. Des Moines: Iowa Vocational Advisory Council, n.d.

Warmbrod, C. P., and Faddis, C. R. *Retraining and Upgrading Workers: A Guide for Postsecondary Educators*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Warmbrod, C. P.; Cap, O.; and Robbins, N. *Business, Industry, and Labor Input in Vocational Education Personnel Development*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1980.

Warmbrod, C. P.; Persavich, J. J.; and L'Angelle, D., eds. *Sharing Resources: Postsecondary Education and Industry Cooperation*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Wenrich, R. C. "Linkages with Industry: Rebuilding a Bridge between Two Worlds." *School Shop* 42 (1983): 71-73.

Wentling, T. L. *Evaluating Occupational Education and Training Programs*. 2d ed. Boston, MA: Allyn and Bacon, 1980.

Wirtz, W. *Community Education-Work Councils*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1976.

Wirtz, W., and the National Manpower Institute. *The Boundless Resource: A Prospectus for an Education/Work Policy*. Washington, DC: New Republic Book Company, 1975.

Worthington, R. M. "Linkage Patterns Are Taking Shape at the U.S. Department of Education." *School Shop* 42 (1983): 73-75.

Wray, M. J.; Hill, S.; and Collober, J. *Employer Involvement in Schemes of Unified Vocational Preparation*. Windsor-Berks, England: The NFER-Nelson Publishing Company Limited, 1982.

REFERENCES

Banathy, B. H., and Duwe, A. *A Model for the Linkage of Vocational Education at Post-Secondary Private School and Industry, Business, and Labor*. San Francisco, CA: Intersystems, Inc., 1978.

Behymer, R. J. "Vocational Advisory Committees and Perceptions of Members Regarding Selected Functions." Ph.D. diss., University of Missouri-Columbia, 1977.

Burt, S. M. *Industry and Vocational-Technical Education*. New York: McGraw-Hill, 1967.

Clark, D. M. "Are We Asking the Right Questions about Industry-Education Cooperation?" *Journal of Career Education* 9, no.4 (June 1983): 338-344.

_____. "Less Rhetoric and More Structure Needed for Industry-School Ties." *Education Week* 22 December 1982.

Clark, D. M., and Rinehart, R. L. *Structures and Strategies for Linking the Higher Education and Employment Communities*. Washington, DC: American Council on Higher Education, 1982.

Coates, J. F. "The Changing Nature of Work." In *Collaboration: Vocational Education and the Private Sector*. Arlington, VA: American Vocational Assocation, 1983.

Coleman, D., and Crowe, M. *Patterns of Linkage Between Training Institutions and Private Sector Employers*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Colorado Department of Education. *Networking between Business and Education at the Local Level: A Training Model*. Denver: Colorado Department of Education, 1983.

Copa, G. H., and Nagi Salem, N. *Potential Vocational Education Indicators: Vital Statistics for Planning, Review, and Public Information about Vocational Education*. Minneapolis: Minnesota Research and Development Center for Vocational Education, University of Minnesota, June 1982.

Copa, G. H., and Scholl, S. *Developing Vocational Education Indicators: Some Steps in Moving from Selection to Use*. Minneapolis: Minnesota Research and Development Center for Vocational Education, University of Minnesota, September 1983.

Craig, R. L., and Evers, C. "Employers as Educators: The Shadow Education System." In *Business and Higher Education: Toward New Alliances*, edited by Gerald Gold. San Francisco, CA: Jossey-Bass, 1980.

Cronbach, L. J. "Course Improvement through Evaluation." In *Evaluation Models: Viewpoints on Educational and Human Services Evaluation*, edited by G. F. Madaus, M. Scriven, and D. L. Stufflebeam. Boston: Kluwer-Nijhoff Publishing, 1983.

Datteri, R. F. "State Advisory Council Activities." Ph.D. diss., Oregon State University, 1977.

Desy, J.; Mertens, D. M.; and Gardner, J. A. *The Long-Term Effects of Vocational Education: Earnings, Employment Education, and Aspirations*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984.

Dunham, D. B. *Information Needs of State Level Decision Makers in Vocational Education or "Data Do Not Equal Information."* Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1977.

Elsman, M. *Industry-Education-Labor Collaboration: An Action Guide for Collaborative Councils*. Washington, DC: National Institute for Work and Learning, 1981.

Gallup, G. "The Gallup Poll of the Public's Attitude toward Public Schools." *Phi Delta Kappan* 65, no. 1 (September 1983): 33-47.

Gardner, J. A.; Campbell, P.; and Seitz, P. *Influences of High School Curriculum on Determinants of Labor Market Experiences*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Guba, E. G., and Lincoln, Y. S. *Effective Evaluation*. San Francisco, CA: Jossey-Bass, 1982.

Hagman, L., and Barlow, M. L. *Role of Advisory Committees in Occupational Education: Types of Advisory Committees*. Los Angeles: University of California at Los Angeles, 1971.

Halasz, I. M., and Desy, J. *Managing Learning Time: Vocational Instructors Handbook*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984.

Hord, S. M. "Working Together: Cooperation or Collaboration." *REDCTE Review* 1, no. 3 (September 1983): 6-7.

House, P.; Shull, R.; and Williams, T. *Plan is Not Necessarily a Four Letter Word*. Washington, DC: U.S. Department of Energy, 1978.

Hull, W. L., and McCaslin, N. L. *Career Education Implementation: A Handbook for Strategy Development*. Columbus: The Center for Vocational Education, The Ohio State University, 1977.

Iowa Career Education Division. *Guidelines for Area Planning Councils*. Des Moines: Iowa Department of Public Instruction, 1983.

Jennings, J. F. "Evaluating Vocational Education: A Congressional Perspective." In *Interpreting Outcome Measures for Vocational Education*, edited by F. L. McKinney et al. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

Mangum, G.; Morlock, J.; Pines, M. W.; and Snedeicer, D. *Job Market Futurity: Planning and Managing Local Manpower Programs*. Salt Lake City, UT: Olympus Publishing Co., 1979.

Maurice, C. "Multi-Agency Linkages and Coordination." In *Contemporary Challenges for Vocational Education*, edited by K. B. Greenwood. Arlington, VA: American Vocational Association, 1981.

McCaslin, N. L. "A Comprehensive Planning Evaluation Model for Vocational Education." Unpublished manuscript. Columbus: The National Center for Research in Vocational Education, The Ohio State University, n.d.

McKinney, F. L.; Franchak, S. J.; Halasz-Salster, I.; Morrison, I.; and McElwain, D. *Factors Relating to the Job Placement of Former Secondary Vocational Education Students*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Naisbitt, J. *Megatrends: Ten New Directions Transforming Our Lives*. New York: Warner Books, 1982.

National Association for Industry-Education Cooperation. *Industry-Education Councils: A Handbook*. Buffalo, NY: NAIEC, 1973.

National Occupational Information Coordinating Committee. *Occupational Information System (OIS) Handbook, Volume I and II*. Washington, DC: The National Occupational Information Coordinating Committee, 1981.

Nunez, A. R., and Russell, J. F. *A Survey of the National Association of Manufacturers*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Oswald, M. "Revitalizing an Old Medium: Using Advisory Committees." In *Collaboration: Vocational Education and the Private Sector*. Arlington, VA: American Vocational Association, 1983.

Patton, M. Q. *Qualitative Evaluation Methods*. Beverly Hills, CA: Sage Publications, 1980.

Pennsylvania Advisory Council on Vocational Education. *How to Approach, Develop, Vitalize, Improve, Structure and Establish Local Advisory Councils in Vocational Education*. Harrisburg: Pennsylvania Advisory Council on Vocational Education, 1982.

Prager, A.; Williams, R.; Finn, P.; Goldberg, J.; and Cohen, M. *Education and Work Councils: Four Case Studies*. Cambridge, MA: Abt Associates, 1981.

Riendeau, A. J. *Advisory Committees for Occupational Education: A Guide to Organization and Operation*. New York: McGraw-Hill, 1977.

Rogers, K. *Correlating Vocational Education with Labor Market Needs Through the Internship Program. Exemplary Project and Final Report*. Little Rock: Division of Vocational, Technical and Adult Education, University of Central Arkansas, 1981.

Ruff, R. D.; Lewis, M. V.; Orth, M. N.; and Shylo, B. J. *National Priorities for Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Ruff, R. D.; Shylo, B. J.; and Russell, J. F. *Vocational Education: A Look into the Future*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Scheller, M. B. *Occupational Advisory Committees: A Theoretical Model to Meet Current Societal Trends*. Stoput, WI: Center for Vocational, Technical and Adult Education, 1978.

Starr, H. *Vocational Education's Response to Skilled Industrial Worker Shortages*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Starr, H.; Dunham, D.; Wolf, W.; and Harris, J. *Developing State Plans for Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1978.

Starr, H.; Merz, H.; and Zahniser, G. *Using Labor Market Information in Vocational Planning*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Stufflebeam, D. L., and Webster, W. J. "An Analysis of Alternative Approaches to Evaluation." In *Evaluation Models: Viewpoints on Educational and Human Services Evaluation*, edited by G. F. Madaus, M. Scriven, and D. L. Stufflebeam. Boston: Kluwer-Nijhoff Publishing, 1983.

Useem, E. *Education and High Technology Industry: The Case of Silicon Valley: Summary of Research Findings*. Boston: Institute for the Interdisciplinary Study of Education, Northeastern University, 1981.

Woodruff, A. P. *National Study of Vocational Education Systems and Facilities*. Vol. 1, Technical Report. Rockville, MD: Westat, Inc., 1978.

Worthington, R. M. *Re-Thinking Education and Work in the United States for the 1980s*. Washington, DC: Office of Vocational and Adult Education, 1981.

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